"THE FAR EASTERN REVIEW" – CHINESE RAILWAY CONSTRUCTION

A COMPREHENSIVE STUDY OF HISTORICAL REFERENCES WITHIN THE LIFE OF THIS JOURNAL OF THE DEVELOPMENT & CONSTRUCTION OF CHINA'S EARLY RAILWAYS, INCLUDING EXTRACTS OF RELEVANT PAGES (**SECTION 1 of 14**)

BY PETER A. CRUSH

INTRODUCTION

This magazine, which was published and edited by American engineer & news correspondent George Bronson Rea (1869-1936), was published monthly from June 1904 to October 1941, initially in Manila and later Shanghai. The magazine contains illustrated articles on engineering, commerce and finance in relation to the modern industrial development of Far Eastern countries during the early part of the 20th Century.

Railways frequently featured in these magazines, which overall provide the best Western source of information (relating to this period) about railway construction and development in China as well as other Far Eastern countries. This collection , forming part of the ."*P. A. Crush Chinese Railway Collection*" includes a substantial holding of the orginal magazines which are bound in annual volumes as well as loose editions. A few monthly issues are missing but in these circumstances copied extracts of interest have been located in other libraries and are included. Because of the age of these magazines the paper and bindings are often fragile and in recent years it is becoming more difficult to access the original publications held by libararies because of serious phsysical deterioration.

The magazine frequently contained lengthy in-depth articles describing the construction of Chinese railways as well as descriptions of the rolling stock employed. The detail is considered very accurate because in many instances the articles were written and submitted to the magazine's editor by the senior foreign civil engineeers tasked with overseeing the construction projects.

This specific research project was conducted by the author over a 25-year period during which he assembled a collection of original holdings by scouring used book dealers and auctions. This was accompanied by a thorough survey of all issues for any information published in relation to Chinese railways**.**

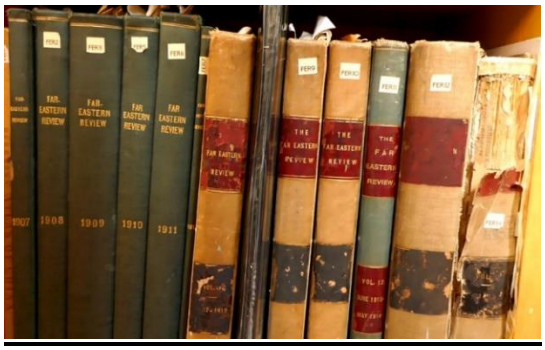
Following the notes summarising railway related content there are digtal scans of the relevant pages. Because of large file sizes, these notes and scans are divided into sections of several (annual) volumes.

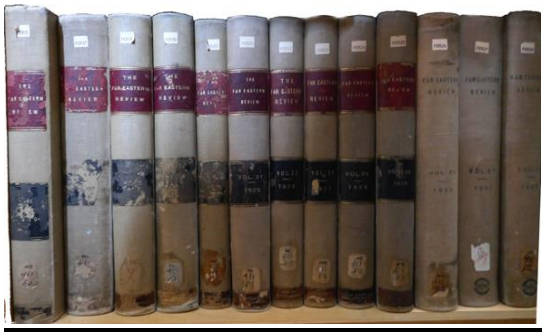
It should be observed that when first published in 1904, each annual volume consisted of twelve monthly editions running from June through to May. During 1916 the publisher decided to reorganize this system and plan for each annual volume to run on a calendar year basis from January to December, For this reason Vol XIII contained 19 monthly editions (June 1916 - December 1917). Thereafter Vol IX commenced in January 1918.

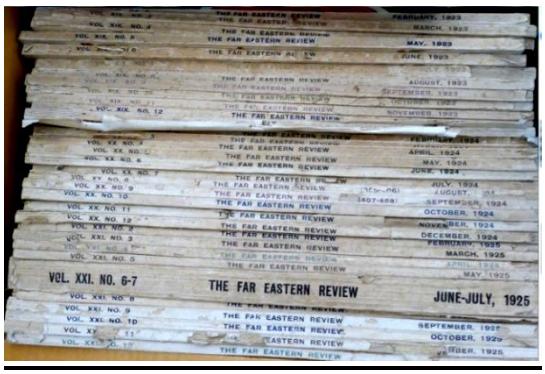
The various issues also include hundreds of photographs, although the quality of photographic prints is unfortunately generally poor to mediocre and with low resolution due to the archaic printing processes of that era.

P.A. Crush

December 2024







HOLDINGS OF ORIGINAL PUBLICATION

Abbreviations:
FER = "The Far Eastern Review"
AP = Advertisement pages
BV = Bound volume
L = Loose edition
LP = Loose pages &/or extracts
Vol = Volume

Collection Reference	Description	Vol	Dates	Edition Nos.
SEC.XIII	Digital Files (FER Vol I-III Jun 1904 –May 1907 digital copies only)			
FER 1	BV	IV	Jun 1907 - Dec 1907	1 – 7 incl.
FER 2	BV	IV V	Jan 1908 - May 1908 Jun 1908 – Dec 1908	8 – 12 inc. 1 – 7 incl.
FER 3	BV	V VI	Jan 1909 – May 1909 Jun 1909 – Dec 1909	8 – 12 incl. 1 – 7 incl.
FER 4	LP / AP only	VI	ex Nov 1909	no.6
FER 5	BV	VI VII	Feb 1910 – May 1910 Jun 1910 – Dec 1910	9 – 12 incl. 1 – 7 incl.
FER 6	BV	VII VIII	Jan 1911 – May 1911 Jun 1911 – Dec 1911	8 – 12 incl. 1 – 7 incl.
FER 7	BV	VIII	Jan 1912 , Mar 1912	8 & 10 (only)
FER 8	BV	IX	Jun 1912 – May 1913	1 – 12 incl.
FER 9	BV	X	Jun 1913 – May 1914	1 – 12 incl.
FER 10	BV	XI	Jun 1914 – May 1915	1 – 12 incl.
FER 11	BV	XII	Jun 1915 – May 1916	1 – 12 incl.
FER 12	BV	XIII	Jun 1916 – Dec 1917	1 – 19 incl.
-	(lack vol. XIV : 1918) but have digital scans of extracts)			
FER 14	BV	XV	Jan 1919 – Dec 1919	1 – 12 incl.
FER 15	BV	XVI	Jan 1920 – Dec 1920	1 – 12 incl.
FER 16	This reference no longer allocated			
FER 17	BV	XVII	Jan 1921 – Dec 1921	1 – 12 incl.
FER 18	BV	XVIII	Jan 1922 – Dec 1922	1 – 12 incl.
FER 19	BV	XIX	Jan 1923 – Dec 1923	1 – 12 incl.
FER 20	BV	XX	Jan 1924 – Dec 1924	1 – 12 incl.
FER 21	BV	XXI	Jan 1925 – Dec 1925	1 – 12 incl.
FER 22	BV	XXII	Jan 1926 – Dec 1926	1 – 12 incl.
FER 23	BV	XXIII	Jan 1927 – Dec 1927	1 – 12 incl.
FER 24	BV	XXIV	Jan 1928 – Dec 1928	1 – 12 incl.
FER 25	BV	XXV	Jan 1929 – Dec 1929	1 – 12 incl.
FER 26	BV	XXVI	Jan 1930 – Dec 1930	1 – 12 incl.
FER 27	BV	XXVII	Jan 1931 – Dec 1931	1 – 12 incl.
FER 28	BV	XXVIII	Jan 1932 – Dec 1932	1 – 12 incl.
FER 29	BV	XXIX	Jan 1933 – Dec 1933	1 – 12 incl.
FER 30	BV	XXX	Jan 1934 – Dec 1934	1 – 12 incl.
FER 31	BV	XXXI	Jan 1935 – Dec 1935	1 – 12 incl.
FER 32	BV	XXXII	Jan 1936 – Dec 1936	1 – 12 incl.
FER 33	BV	XXXIII	Jan 1937 – Dec 1937	1 – 12 incl.

Last revised 20.02.2020

Collection Reference	Description	Vol	Dates	Edition Nos.
FER-L	Loose x 10	XVIII	Jan, & Mar 1922 – Nov 1922 inclusive. (missing Feb & Dec) *1	1 & 3 - 11
FER-L	Loose x 11	XIX	Feb-Dec 1923 inclus. (missing Jan) *1	2 - 12
FER-L	Loose x 12	XX	Jan - Dec 1924 incl.	1 -12
FER-L	Loose x 11	XXI	Feb - Dec 1925 incl. (missing Jan)*	2 - 12
FER-L	Loose x 12	XXII	Jan - Dec 1926 incl.	1 -12
FER-L	Loose x 12	XXIII	Jan - Dec 1927 incl.	1 -12
FER-L	Loose x 12	XXIV	Jan - Dec 1928 incl.	1 -12

note *1 These loose editions were donated to the Tangshan Kailuan National Mine Park & Railway Origin Museum [开滦国家矿山公园]
note *2 This edition was donated to the ZHAN Tianyou (Jeme Tien Yow) Former Residence & Memorial Hall , Guangzhou, China [詹天佑故居紀念館]

FER APPENDIX

(Note : to view the relative pages of the magazine, scroll down to the end of these notes for each volume, respectively)

Volume I

June 1904:
The Kowloon-Canton Railway, Discussions were under way for financing this as as a prolongation to the Hankow-Canton Railway.
The Shanghai-Nanking Railroad, Surveying for this 53 mile railway via Soochow was in progress.
Tai Yuen-Hankow Railway, An American merchant had sought permission to build this line.
A Chinese Railway Promoter, Singapore merchant Taotai Chang Hsinnan had applied for permission to build a line betwen Swatow and Taochow.
The Shanghai-Hunan Railway, The Belgian were attempting to participate in the building of the northern parts of the Canton-Hankow line (or branches) , a concession which had earlier been awarded to an American syndicate.
China's Railways, the Straights Times reports on the progress of China's railway development.
Manchurian Railway, A short report on the Russian operated railway in Manchuria with passenger numbers for September.
Macao-Canton Railway, The Soiuth China Post had reported that a US syndicate had obtained a concession to build a railway between Macao and Canton. If the Amricans intended to improve harbour facilities, this would threaten Hong Kong's supremacy.
Trans-Formosan Railway, The line between Keelung and Sansaka had been opened to traffic and woerk on the southern section was progressing.
China's Railway Concession Law. A translated version of this new law had been submitted to te US State Department.
Proposed Chinese Railway, A Belgian syndicate had reportedly sought permission for a new line from Shanghai to Nanchang in Kiangsi.
The Canton-Fatshan Railway The writer claimed this short line runs from "nowhere to nowhere" with the terminus being in Shekwaitong.

Shanghai-Nanking Railway, H.E. Sheng Kung-pao had arrived at Nanking to discuss railway loans.
Tientsin-Chinkiang Railway , A report that the survey had been completed.
Swatow-Chaochowfu Railway The project was proceeding and loans were being negotiated in Hong Kong.
Macao-Canton Railway Short report about how negotiations for this railway were continuing.
The Kowloon-Canton Railway , A discussion about whether the Brtish and/or Hong Kong governmensts should be involved in building and funding this railway

July 1904:
Haicheng-Fenghwang Railway, between Fenghwang & Liaoyang: news that the building of this railway had been abandoned.
Tientsin-Chinkiang Railway : the survey had been completed.
Chapoo-Pootung Railway, Tientsin : a Chinese and German syndicate had applied for permission to construct this railway.
Ch'uan-Han or Szechuan-Hankow Railway: work was to begin the following July by surveying the preliminary section between Chengtu to Chungking.
Swatow-Chao-Chow-Foo Railway: reports that 23 Japanese had arrived to commence operations. Swatow Railway (proposed): a report from the Acting Consul, Mr Willis that a wealthy Chinese emigrant had been awarded the concession to build this line and that a Chinese engineer, who had trained on the Tientsin-Newchwang line, was to survey the line which would be finished in about two years.
Projected railway : The Taotai of Ichoufu was reported to be raising capital for a railway line from the Ihsien coalfield to Tai'erchuang on the Grand Canal.
Shanghai-Nanking Railway: a report that arrangements for a loan of £2000,000 completed. Hankow-Canton Railway: report on the resignation of two Belgian directors working for the King of the Belgians "Congo Railway Company" which had an interest in the in the Hankow-Canton railway.
Canton & Hankow Railway- "An American Institution": a report that the Chinese administration still recognized the railway as an American institution notwithstanding that a majority of the shares had passed into the hands of the Belgians.
Shanghai-Nanking Railway: a report that all preliminaries had been settled between the Chinese and British and work would begin immediately.
Canton-Hankow Railway: a report that the Wason Manufacturing Co of Springfield, Mass. had secured a contract for building passenger and freight cars.
"China's Railroads" by J.W. Jamieson, British Commercial Attache' in China. Jamieson reports on the progress of railway development in China since the end of the Boxer hostilities. The Imperial Court was now favouring railways and the mileage of Imperial Railways of North China had increased to 580. Jamieson also reports on the rapid progress of the French/Belgian Peking-Hankow line, the Kaifeng-Honanfu line, the Chengting-Taiyuan line and other lines including the 80 mile-long Pekin Syndicate line from Chinghua to Taokau.

August 1904:
Canton-Hankow Railway: a report that the Director-General of Southern Railways had indicated that there were no powers to prohibit American shareholders selling their stake in the company building this railway to Belgian interest and that the concession could not be cancelled.

New Railway Route to China : a report from an Austrian review on a proposed new railway route to China from Constantinople via Eastern Turkestan.
Hankow-Szechuan Railway: a report about keen competition between the French and British to obtain the right to construct a railway between Hankow and Szechuan. The French and British Ministers had been advised to notify their nationals that there was no hope of either securing a concession. Chinese students had been sent to Belgium and Japan with a view to building the railways themselves. The Far Eastern Review's own Peking correspondent believed, however, that if the two foreign agents combined their interest in this project, no difficulties would be experienced in obtaining the right of construction.
German Shantung Railway: a report dated 1st June (1904) that the line from Tsingtau, Weih-sien and Tsinan-fu had been opened to traffic "last Tuesday" . It also refers to a 1903 report about the importance of connecting with other Chinese lines especially the Tientsin to Tsinan-fu line, Tsingtau having been established as a ranked East Asian port. The receipts of the Shantung Railway for 1903 had reached $442,239 against expenditure of $289,253.
Peking-Chinkiang Railway: a report in the N.China Daily News suggested that there was a hitch in the contract given to the German-English syndicate for this railway, which was to be constructed immediately after the Tsingtao-Tsinan-fu was finished.
Shanghai-Nanking Railway: a London newspaper reported that a Chinese Imperial Railways loan of £2,250,000 had been issued bearing interest of 5%. Subscribers would also receive 20% of net profits of the railway.
Shanghai-Nanking Railway: a report dated 18th June stated that work on this line had been suspended owing to a deficiency of capital but work would soon recommence following the new loan agreement.
Tsao-Chow-Swatow Railway: a report announcing the start of the construction of this railway as soon as the required capital had been fully subscribed.
New Railway, Manchuria: a report that the Russians were building a branch railway north of Fengtien. Work was expected to be completed by July.
Franco-Belgian Syndicate: a report that this syndicate had been awarded two concessions in China, one for railway in Shensi and the other for a tramway at Tientsin.
Luhan Railway: the line from the south was reported to have reached within 30 miles of the Yellow River and it was now possible to travel between Kaifong and Hankow in 2 days.
Chinese Railways: it was reported in Shanghai that Germany had obtained the right to lay a railway from Putong (opposite Shanghai) to Kangchou.
Shanghai-Nanking Railway Loan: A copy of an advertisement dated 16 July 1904 in Hong Kong & Shanghai newspapers formally announcing the railway loan and its conditions.

September 1904:
Railway Extensions, a report that Shang Suenhwai, who is authorised to approve the construction of branch lines up to 150 miles in length has requested authority to extend the scope of the authorization to meet the need of the times. It was also reported that a 25 mile-long section of road-bed had been completed from Chengtinghu to Huailai on the Chengtai railway.
Peking-Hankow Railway, a report that upon learning that the Belgians had purchased shares in the Yueh-Han Railway syndicate local gentry of Hunan and Hupeh had urged the government to withdraw or buy back the concession.

Chinkiang-Soochow-Shanghai Railway, a report that the Viceroy of Nanking had advised the construction of this railway would shortly commence and they would attempt to obtain financial backing from local merchants.
Yunnan Railway, a report that Italian navvies as well as French, Greeks and Chinese were working on the construction of this railway and that trains were already running from Hanoi to Yenbai.
Hsiao-Ching Ho Railway, reports that this proposed branch line was now agreed between the Governor of Shantung and the German railway company represented by Chief Engineer Mr Hildebraude of the Chiao-Chou-Chinan line. The line would run for 2,500 metres from Chinan to the south bank of the Hsiao-Ching.
Peking-Kalgan Railway, a Chinese newspaper reported that the line's construction had been dropped.
Shanghai-Nankin Railway, a report that an Imperial Chinese Railways prospectus had been issued for part of a total loan of £3,250.000.
German Shantung Railway, a report that the line between Tsingtau,Weihsien and Tsinanfu had been opened. The company report for 1903 is also referred to with a repeat of information printed in the August 1904 issue (see above).

October 1904:
Chinese Imperial Railways: Troop Train for Manchuria, a wide-angled photograph of wagons containing armaments. No text.
Chinese Railways, A report to the effect that Shang Suen-hwai had persuaded wealthy locals to subscribe to the shares for this proposed railway and that British and French efforts to obtain the construction rights between Szechuan and Hangchow had failed.
The Belgian Syndicate, The Peking Tokio Asahi reports that the Peking Syndicate had ceded all its railway concessions to the Belgian Syndicate who were owners of the Peking-Hankow Railway. The Belgians had also acquired the major portion of shares in the American-owned Hankow-Canton Railway.
Hankow-Canton Railway, A report that Hunan residents were angry about the passing of ownership of this railway from American to Belgian interests. Various schemes had been put forward to counter this and a demand had been made for the cancellation of the concession. Sheng Kung-pao (Director General of Railways) was avoiding the issue by claiming to be sick.
Canton-Samshui Railway, a report that on 22 September the last (silver) spike had been driven at a ceremony for the completion of this 32 mile railway. A list of dignitaries attending is included.
Macau-Canton Railway, a report from Peking that the Portuguese had sought permission from the Chinese to raise capital for a Macau to Canton Railway but the application had been rejected.
Shantung Railway, a report that German engineers were surveying for a railway to extend southwards from Chinanfu towards the Honan border. There was however little prospect of the scheme going ahead on account of the Russo-Japanese War.
Manchurian Railway, Russian reported asked if China would purchase the Chinese Eastern railway but the Chinese had replied that they were unable to do so at that time and had requested postponement.
Hunan-Hankow Railway, a report that wealthy Hunan residents had obtained permission to construct this railway. Capital would be raised from local investors and a proposed surcharge on rice.
Nanchang-Kiangsi-Kiukiang Railway, a report that a British merchant had concluded a secret agreement with local Chinese officials to build this railway and also develop coalmines at Nanchu.

Luhan Railway, a report that the Luhan Railway Company intended to purchase the Siling Railway, which was to be made a coal branch line. Company deputies would negotiate with Sheng Kungpao and Viceroy Yuan Shih-kai.
Peking Syndicate, a report that the Taokow-Tawang section had been thrown open to passenger traffic using open trucks. The Luhan railway was now running trains as far south as Ikou.
Yunnan Railway, a report that the French railway was now running from Annam to Mengtse and that the line to Yunnan was also completed except for stations which were under construction..
Shansi Railway, a report that a British Merchant was requesting the right to build a railway from Taiyuenfu to Poochoufu. The Chinese however were reluctant to grant this right to an outsider, but Provincial authority would try to raise funds to build themselves.
Yunnan-Kweichow Railway, a report that the Viceroy of Yunnan had sought funds to build this railway.
Light Railway Peking, a report that the light railway between the West Gate and Eho Park Palace, which was destroyed by German troops in 1900, was soon to be restored. (This refers to the Decauville railway)
Swatow-Chaochoufu Railway, a report that the survey had been completed and that work would begin on the 17th October.
Yunnan Railway, a report that 12,000 men were engaged on building this line.
Hankow-Hangchow Line, a report that Chekiang gentry had applied for permission to build two railways, one from Hankow to Hangchow and a second from Kiukiang to Foochow. A loan would be raised from American capitalists if necessary.
Imperial Railways of North China,-Working Costs, A chart displaying statistics including passengers and freight carried, revenue and costs etc. for the period January 1904 to May 1904.
The Mineral Resources of North China, Report about development of mines and granting foreign concessions. 2 small pictures of Imperial Railways of North China scenes an full-page map of Chihli Province showing railway lines.

November 1904:
Canton-Hankow Railway, a report that the Canton Bureau of Commercial Affairs had appealed to Peking to cancel the American concession for this railway in view of the fact that the Americans had sold their interests to the Belgians, in contravention of Article 17 of the agreement. It had also caused troubles between engineers and workmen resulting in loss of life. Various senior officials had also been lobbied to consult with Sheng Kungpao on the issue.
Canton-Hankow Railway, a report that Hunanese gentry opposition to the sale of the railway to Belgians, with President Chu Hungchih also backing the protest, had put Sheng Kungpao in a difficult position with regard to the legal position on ownership of the railway concession.
Canton-Hankow Railway, a report that Minister of Railways Sheng Kungpao upon learning that a Belgian, M.Satow had been appointed General Manager of the railway company, had telegraphed USA stating that the Chinese Government would no longer recognize the company as the Chinese American Company. Minister Sheng was also refusing to meet Satow.
Canton-Hankow Railway, a report that the Yueh-Han railway would probably revert back to American ownership.

Shanghai-Woosung Railway, a report that control of this railway was transferred on 9th October from the Chinese Imperial Railways Administration to the Shangha-Nanking Railway. A special train carried various officials celebrating the transfer. Nearly all the old staff would be retained except for the previous Manager, Mr.Chun Oi-ting.

Pekin-Hankow Railway, a report from Chengchou that this place was to be the place on the line between Peking and Hankow. Enterprising Chinese had already bought up the land between the citywalls and the railway and building was taking place. The railway was constructing a large station and depot at this city with houses for 7 foreign staff. Another railway from Kaifeng to Honanfu would cross the Pei-Han line at this spot.

Chinese Eastern Railway, a report that traffic on this line between Tashichao and Newchwang opened on 17th September under Japanese management. The difference in gauge had necessitated the Japanese laying a third rail on the old 5 ft gauge track in order to use their rolling stock. The Russians had not left a single locomotive when the line was transferred to the Japanese. The operation of the line for military purposes had resulted in the Japanese sending over a lot of rolling stock from Japan.

Macao-Canton Railway Project, A report that a concession for the building of this railway had been granted but there was no official confirmation of this report. A further report suggested the capital for this railway project was to be $4 million.

Pekin Syndicate Railway, a report that the railway between Tsechow and Taokow had been built but that the Chinese Government would not permit the carriage of passengers or cargo meaning the line did not pay. The company planned to sell the line to the Luhan railway for 7 million Taels.

French Honei-Lungchow Railway, a Japanes newspaper reported that this railway which ran via Liaoshan, and for which the French had secured the rights, was progressing well.

Shanghai-Hangchow Railway, The German Consul in Shanghai was reportedly trying to obtain the concession for this railway from the British to counteract Britain's efforts to obtain preferential position in China.

Fenyang-Nanking Railway, a report that merchants in Anhui planned to build a railway from Fenyang to Nanking.

Szechuan-Hankow Railway, a report that this railway should be built with local Chinese funds to prevent a foreigner from obtaining a concession.

Manchurian Railway, a report that the gauge of the line from Dalny to Newchwang had been changed with locomotives arriving from Japan for the line. The change of gauge would soon be extended to Liaoyang. If Mukden fell into Japanese hands the line would also be extended there.

Hankow-Hangchow Railway, a report that Chekiang merchants had petitioned to build a railway from Hankow to Hangchow and from Kiukiang to Foochow.

Nanchang-Kiukiang Line, a report that the right to build this line had been granted. Money for the line would be raised by selling lottery tickets.

Reports on Railways in China, a report that Prince Tsai Chen had presented a memorial to the Throne calling on the Imperial Railway Commissioners to present a full report on all railways in China. The report was to cover particulars of foreign signatories, salaries of foreign and Chinese staff, income and expenditure together with development plans. Quarterly reports would also have to be provided in future.

Kiangsi-Kiunan Railway, a report that capital was being raised from local merchants for this railway.

Kengchau-Hankow Railway, a report that the Government had turned down a request for permission to build this line on the grounds that the capital could not be raised.
Shanghai-Nanking Railway, a report that preliminary work on this line would commence in Shanghai on 3rd October.
Chengtin-Taiyuan Railway Loan, a report that 500,000 francs had been raised and would be handed over to the railway administration in a few days.
Chentingfu-Taiyuanfu Railway, a report that the original concession for this railway had been given to the Russo-Chinese Bank but the concession would now be transferred to a French syndicate for 40 million francs in bonds.
Su-Hu Railway, a report that a petition had been presented by a Soochow merchant to build a railway from Shanghai to Soochow and that 4 million Taels had been raised.
Canton-Macao Railway, a report that the Portuguese Consul had come to an understanding with Sheng Suen-hwai, Minister of Railways about establishing a customs branch at Macao in connection with the railway.
Shanghai-Nanking Railway, a report that Sheng Kungpao wished to exchange the Shanghai-Nanking Railway for Taichuan but the British Minister would not consent.
(1904 & January 1905 nothing relevant to railways)

February 1905
Port Arthur Railway, a Tokyo report that the railway from Changlingtse to Port Arthur had been repaired and opened to traffic 15th January.
Kowloon-Hong Kong Railway, a report that the long-delayed construction on this line would begin.
Chinese Funds for Railways, a report that funds were being raised by Shansi bankers for construction of railway in their province. (so as to anticipate proposals for Russian concessions in that locality)
Chinese Railway Project Fails, a report that a request to build a coal line from the Western Hills to Peking had been denied.
Locomotive Contract, a report that Robert Stephenson of Springfield Works, Darlington had won the tender for building ten large 4-wheeled coupled passenger locomotives with 4 wheel leading bogies and 6 wheeled tenders.
Hanoi-Yunnan Railway, a report that the railway between Hanoi and the Yunnan border had been completed and that work on the French Yunnan railway would begin immediately, the survey having been completed.
American Railway Trucks for China, a report that the Quong Truck Co of Seattle had secured an order for construction equipment for the railway from Sun Ning north towards Canton. The line would ultimately be extended to Fuchan to connect with the line to Canton, American equipment was to have preference.

March 1905
Peking-Kalgan Railway, a report that the Chinese were seriously contemplating building this line.
Canton-Hankow Railway, a report that Chinese officials remained obdurate in the matter of cancelling the concession.
Peking-Hankow Railway, M. Jadot ,the Engineer-in-Chief of the railway reported that the line was finished as far as the Yellow River, the total length being 600 kms. The last 300 kms had been laid in 1904.
Nanking-Shanghai Railway, a report that Hong Kong & Shanghai Bank had paid £250,000 to Sheng Kungpao for the railway. Pau Taotai, the director of the line had obtained sanction to draw 100,000 Taels of this to purchase land for the line.

Railway Enterprise Hunan, a report that work would shortly commence on building a line from Changsha via Changte and Chenchow to connect with the Szechuan-Hankow Railway.
Hankow-Peking Railway, The railway was reported to be completed by April except for the bridge over the Hoang Ho River, which on account of numerous floods would be two miles in length. 380 kms. From Hankow to Yencheng were already open to traffic and from the latter construction trains were running 200-300 kms further to the river. From Peking south 390 kms of line were open to Shen Te from where construction trains ran to Changte. From here the line was under construction to the river. The line was expected to be connected with the Tsinan line or the Anglo-German Nanking line.

April 1905
Peking-Kalgan Railway, a report that the financing for this line would be raised in the provinces and not taken from the Imperial Treasury.
Railway Material, Swatow, a large shipment of railway material had arrived and it was expected that the line would be ready in 18 months.
Yue-Han Railway Agreement, reported that the American Government was now willing to accept cancellation of the concession provided a premium was paid to shareholders.
Fukien Railway, Mandarins from Fukien Province had sought permission from the Throne to construct a railway using locally raised funds.
Train Service Suspended, North China, Imperial Railways gave official notice that service between Koupangtsze, Yingkow and Hsinmintung had been suspended due to unforeseen circumstances.
Tse-Poo Railway, the railway at Tse-Poo in Shansi Province would shortly come under Chinese control for which reason Mr “Chin Tien Yu” (probably Jeme Tien Yew) would inspect the accounts.
Canton-Hankow Railway Equipment, W.M. Pinkston, a railway official, had gone to USA to purchase equipment for this line. 20 miles were already finished and a further 750 miles were being built.
Tonquin Railway, Western China, the French railway was making good progress but work was now slow due to the railway having reached hill country. There was also a scarcity of local labour. Money for the railway was however no object and the French were determined to finish the line and divert Yunnan and Szechuan trade to their Indo-China ports.
Locomotive Construction in China, the third of a Mogul type of locomotive had just been completed at the Tongshan works of Imperial Chinese Railways. The cylinders were attached to the frames by a unique method devised by Mr Kinder, making for easier removal of the cylinders for maintenance. The other two locomotives constructed 1 and 3 years earlier resp. had the same arrangement and had been operating satisfactorily.
American Locomotives for “Japan”, an article about an order for 152 locomotives from Baldwin, Atlantic Equipment Co, and North British, Glasgow. The locomotives could be used in Corea, Manchuria or Japan.

May 1905
Chinese Coal Developments, an article about China’s coal fields and the completion of the Peking Syndicate Railway to Taokou which will enable the coal deposits in Shansi to find an outlet to the coast. The Peking-Hankow Railway through the coal fields will create a second outlet.
Chinese Government Decorations for Railway Employees, Messrs. Cox, Yingkon (Yi Ng Kon?), Tuckey & V. Engstrom were awarded the Fourth Class Order of the Double Dragon by the Throne for services building the railway outside the Great Wall. Mr Kinder was elevated to a higher grade.

Tientsin-Chinkiang Railway, a section has been completed.
Lu-Han Railway, the line now open as far as Hsin-Hsiang.
Railway Traffic to Mukden, traffic to Mukden resumed following repairs to across the Hun River.
Shanghai-Nanking Railway, had moved their bureau to offices just vacated by East Asiatic Co on the Bund.
Chekiang-Canton Railway, Chinese students in Japan were opposed to Americans building this railway.
Peking-Kalgan Railway, survey work was about to be started by a Chinese educated overseas (Jeme [Chan]Tien Yiu).
American Locomotives for the Orient, 12 locomotives had been shipped to China during 1904, 7 in 1903 and 2 in 1902.
Kowloon-Canton Railway, Governor Sir Matthew Nathan continues to push the matter and prospects for this railway are taking shape.
Railway to Kalgan, the line is about to go ahead with Chan (Jeme)Tien Yu appointed Manager.
Manchurian Railway, the railway is likely to remain in the hands of the Japanese. So far it had been an economic failure and only the controllers of Port Arthur and Dalny could make it succeed.
German Projects in North China- Tientsin-Tsinanfu Railway, The German Minister to China was pushing for the preliminary contracts for this railway to be finalized. The Chinese Government was refusing without first obtaining consent from Anglos-German Company. The British were also strongly opposed to the scheme.
Proposed Canton-Whampoa Railway, a proposal from local Chinese to build a line from Canton to Amoy with the first section going through Whampoa.

"APPROVED WATER SYSTEM FOR MANILA," IN THIS ISSUE

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THE FAR-EASTERN REVIEW

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FAR EASTERN RAILROADS

BANGKOK ELECTRIC STREET RAILWAYS

Bangkok, April 1st.

Much interest is being taken in the proposed new tramways which are to be undertaken by a new company called the Siamese Tramway Company, Limited, the chairman and promoter of which is H. R. H. Prince Naradhip, to whom a concession has been granted by the King. The Company's capital is divided into 5,000 shares of 100 ticals each, and 5,000 debentures of 100 ticals each. One-tenth of the shares are held by Europeans and the rest by Siamese, 2,000 being held by Prince Naradhip alone. The length of the new tramways will be 19 kilometres, and the trams will run in various directions. The cost is estimated at 1,029,000 ticals, and the line is expected to be opened in January next, and there will be 40 cars for ordinary traffic and 10 for the special use of Royalty. Messrs. Orenstein & Koppel, Ltd., Berlin, have obtained the contract for all equipment, excluding bridges, sleepers, poles, buildings, and wood for cars; the Allgemeine Elektricitats Gesellschaft, Berlin, are to supply the electrical machinery and overhead construction, and Messrs. Howarth Erskine, Ltd., have the contract to supply 21 steel road bridges.

GERMAN LOCOMOTIVES FOR JAPAN

The constructional drawings for thirty powerful locomotives, required for use on the Japanese Government railways, have been finally approved, the contract for the whole of the thirty engines being placed with German builders. Twelve of the locomotives are to be delivered by the Berlin Machine Company, whilst the contract for the remaining eighteen engines has been equally divided between the Hanover Machine Company, of Linden, and Messrs. Henschel & Son, of Cassel. The Berlin Machine Company's tender was £1995 per locomotive, the Hanover Machine Company's tender £1989 per locomotive, and £707 for the reserve boiler and wheels. The lowest British tender was £2008 per locomotive.

The Northern Railway to Anuradhapura in Ceylon will be finished by July next.

STEAM OMNIBUSES IN TIENTSIN

The latest thing in locomotion in Tientsin is a service of steam omnibuses. For some time these vehicles have been plying between the Viceroy's Yamen and Tientsin native city station, and now an enterprising Chinaman is going to extend the route and take the 'buses right through Tientsin on a regular half-hourly service. If this goes on, China's roads will soon have to be improved.

THE KOWLOON-CANTON RAILWAY

Concerning the Hankow-Canton railway, and its necessary prolongation to Hongkong the *China Mail* says:—"We believe that if the Imperial Government will agree to the suggested guarantee of interest, the capital for this railway project would be forthcoming, either locally or in London, and if there is no likelihood of the scheme being carried out in any other way we would suggest, since the development of the new territory is so closely bound up in the railway, that the Government's attitude should be put to the test by a formal resolution in the Legislative Council. The unanimity of the Chamber of Commerce is sufficient to convince the Government of the earnestness of the community in the scheme." That is sound. The resolution put before the Legislative Council should declare the expediency of the colonial revenues of Hongkong for use or the security for the interest. It is hardly likely that the Colonial office would venture anyway to sanction refusal on the principle of the resolution. The rest should be easy. When we see at home the lavish way in which municipalities and county councils run into debt for objects of debatable utility, it seems anomalous that crown colonies should not have full liberty to issue loans where the works to be executed are certain to prove reproductive, directly and indirectly.

NEW RAILROAD IN AUSTRALIA

A new railroad may shortly be started in West Australia. A survey is now being made by Government for a line from Yellowdine, near Southern Cross, to Mt. Candan, Parker's Range. The mountain is called after a Frenchman, who pegged out the property some years ago and tried to float a company in Adelaide, but, as railway facilities did not exist at the time, the proposition was not entertained. The property consists of an iron hill containing rich hematite and manganese. English capitalists have now taken it in hand. The control of the concern is in the hands of "Dynamite" Thomson, who first brought Nobel's explosives to Australia thirty years ago.

Coal is now being used on the Perak railway, as the firewood contractor has failed to keep up supplies. The firemen being unused to stoke coal, much extra work falls on the drivers.

A railway concession is about to be granted to a certain power in Siam, says the *Siam Free Press*. The railway is to run from Chiengmai to Chieng Rai, through the South Shan States, to and connecting with the Burma system.

HONGKONG STREET RAILWAY

As to the tramways in Hongkong the *Daily Press* says:—

"In a very little while the new tramways will begin running. At the depot at Bowrington Canal great activity is being shown in the preparation of the plant. Many of the cars have been constructed. They are very handsome carriages—roomy, well lighted and ventilated.

From a recent issue of the *China Times* we learn that the new branch line of the Imperial Railways of North China, running from Kaopantzo northward to Hsinmintun, some 40 miles N. W. of Moukden, has been at last completed.

During the coming year 1904-5, the Government of India propose to raise a rupee loan of three crores of rupees, for expenditure on railway irrigation works. They reserve to themselves full liberty to vary the amount now announced to any extent that may be considered desirable.

MALAY STATES RAILWAYS

THE REPORT FOR 1903.

The departmental report of the Federated Malay States Railways for 1903 has been issued.

The first steps looking to the fusion of the Perak and Selangor systems were taken in the early part of 1903, and it became an accomplished fact on the 15th August with the opening of through communication from Penang to Seremban via Taiping and Kuala Lumpur. All railway revenue and expenditure appear in the Federal Estimates for last year for the first time. It has therefore been possible to present a report for the whole of the F. M. S. Railways as one complete concern.

The construction staff of the F. M. S. Railways have every reason to be satisfied with the work done during the year. The number of miles open at the beginning of the year was 274; and by the 15th August the open mileage had risen to 339 miles. This increase of 65 miles included the completion of four tunnels, two of them major ones, heavy cuttings and the raising of high embankments on treacherous soil. These all have been accomplished with marvellous rapidity under most difficult circumstances, and the work done is a record one of which the engineering staff of any railway system in the world might be proud.

At the close of the year the capital expenditure on the whole system had risen to upwards of 31 millions which represents an increase of $8,325,841 expended on construction during 1903. The dividend earned on this capital was $1,881,685.11, equal to 6.06 per cent., as compared with 5.88 per cent. for 1901-02 on a capital of $22,734,116. The average capital outlay per mile of line open was $91,365, against $82,822, at the close of 1902; the increase is chiefly accounted for by the high cost of the pass section between Taiping and Padang Rengas. The earnings per mile of line open per week and the net earnings per train mile were $208.47 and $1.73, respectively, being the highest amounts earned during the last ten years. The above eminently satisfactory figures are all the more encouraging seeing that they were attained in the face of a depreciated currency.

Insufficiency in the rolling stock is a disadvantage under which the F. M. S. R. is laboring in common with many other young and go-ahead lines. Nine bogie coaches and 101 goods vehicles were completed during the year, but with a daily expanding line the total available is still very short of actual requirements, and it is only by keeping the coaches and vehicles on the road longer than they should be that it has been possible to deal with the traffic.

Tue following remarks of the General Manager will no doubt be read with interest:—"As a result of opening through from Penang to Seremban, passengers from Kinta to Penang and vice versa travel by railway throughout; this service is very popular. There is also a considerable pig and poultry traffic from Penang to Kinta, which formerly went via Teluk Anson, and latterly there have been heavy consignments of horned cattle from Province Wellesley to Kinta that formerly were driven. It became possible to considerably reduce rates of goods traffic carried for distances of 100 miles and over; these have enabled the railway to secure large consignment of mining machinery, portable engines, pipes, etc., from Penang to stations in Kinta and Selangor, this traffic, which is discharged into lighters from ocean-going steamers in Penang Harbor, then taken to Prai and there loaded direct into trucks for destination, pays well and also suits the consignee who gets his goods earlier, cheaper, and with less handling than was formerly the case.—*Perak Pioneer*.

THE SHANGHAI-NANKING RAILROAD

Soochow, May 10th.

This road, which is to run via Soochow, continues to receive much attention from several surveyors, but so far as we can learn nothing has been done towards the actual making of the road. We hear that the road will be completed in a year and a half. The distance by rail between here and Shanghai is to be only 53 miles. There are several parties engaged in surveying near Soochow, and we understand one party is at work on the Soochow-Hangchow line.—*Shanghai Mercury*.

TAI YUEN-HANKOW RAILWAY

An American merchant has applied from the Wai Wu Po for permission to build the Tai Yuen Hankow railway with a capital of Tls. 40,000,000 which have already been subscribed, definite arrangements having been made with the Governor of Shensi as regards the railway. As proposed, the road will run from Tai Yuen-fu, Shensi, passing Shensi, through Tung Kwan, and on to Hankow. The Wai Wu Po have not yet given any reply.

The North Borneo Railway is 110 miles long, meter gauge, and two lots of debentures have been successfully floated for its extension: £200,000 at 5 per cent.

A CHINESE RAILWAY PROMOTER

Hongkong papers report that a Chinese merchant of Singapore, Taotai Chang Hsinnan, has been granted the concession of the construction of a railway from Swatow to Taochow. It is said that the capital, which is to be Chinese, amounts to Tls. 2,500,000 which have been subscribed by merchants in Singapore and Hongkong. This, it is understood, is Chang Cheng Hsun who was for several years consul for China here about 1897. He was one of the directors of the Canton-Hankow railway, and was a trader here for many years besides being Captain China in one of the Dutch towns. He is a keen business man and is at the present time financially interested in many flourishing businesses in Singapore and the Straits. He has been recently travelling through the Native States and the Settlements, and is at the present time understood to be in Rhio.

THE SHANGHAI-HUNAN RAILWAY

The *Universal Gazette* learns that the original scheme of the Belgian railroad merchants was to construct a line of railway from Shanghai to Canton where it would join the Canton-Hankow Railway, but in time their engineers found that Fukien and Chekiang, through which the proposed line had to pass, were so mountainous that extraordinary labor and capital would be required to carry out their scheme. Therefore they finally gave the idea up and turned their attention to the northern section of the Canton-Hankow Railway, but as the right to construct this section had been acquired by others, the Belgians had likewise to give up the idea. They then at last hit upon the scheme of the Shanghai-Hunan Railway which was to come into contact with the Canton-Hankow Railway in Hunan Province. They proposed to build this line from Shanghai to Hangchow, and then, by way of Changshan, of Chuchou, of Hangchow, to Yushan of Kiangsi, then by way of Nanchang, the provincial city of Kiangsi, to Changsha of Hunan, consequently the line will pass through the four provinces of Kiangsu, Chekiang, Kiangsi, and Hunan, where it would cut through the branch line of the Canton-Hankow Railway. The Belgians proposed further to compete for the privilege of constructing this branch line so as to share its profits with the Americans. Now this whole scheme was taken up by the Belgians before the Boxer disturbance, but it was not till last winter that it assumed any definite shape. At that time, a Hunan merchant, a Fukien merchant, two Chekiang merchants, and some Belgian merchants in Shanghai, got hold of this idea together, and it was proposed that the Belgians were to go to Peking and ask the representative of a certain power (the Belgian Minister?) to obtain on their behalf this concession from the Chinese Government, while the Chinese originators were to proceed to Peking to work the scheme to a success through influential officials. They promised the Empress-Dowager through a certain Imperial clansman that the Belgians proposed to prospect for a capital of Tls. 3,000,000 to build this line, and the latter would present out of this Tls. 1,000,000 to her as a royalty, as soon as she had given consent, the amount to be immediately deposited with the Russo-Chinese Bank at Peking. It was understood that the originators would get Tls. 300,000 as their reward for carrying out the scheme to a success and the four Chinese originators would also get appointed to lucrative and influential posts on the railway when it has been completed during construction. The whole scheme has been carried out most secretly, but it is said that its success is now assured. After a decree sanctioning the right to the Belgians has been promulgated, they will immediately proceed to Belgium to prospect for capital. If the Chinese wanted a certain number of shares, they could purchase them in advance now and the shares could be retained for them, but not otherwise.

CHINA RAILWAYS

The number of railways at present in actual operation in China is limited, but their usefulness and their mighty power of development is not limited. Within a few years, the Lu Han route from Peking to the Yangtsze River at Hankow will be opened throughout, with results that no one can safely predict. The German line from Kiaochau to Tsin-nan-fu, the capital of the Province of Shantung, was completed and opened for traffic recently, and there is reason to believe that its extension will be proceeded with at an early date. Its traffic is certain to be enormous, and the economy, as compared with previous methods of carriage, is obvious to the most prejudiced and stolid Chinese. The opening on 15th November of the first short section of the Canton-Samshui line, which is to be connected with the great route from Canton to the Yangtsze, has made a substantial impression upon the shrewd Cantonese. The trunk line from Tientsin to the Yangtsze, in some respects the most important and the most promising of all, is likely to be begun soon. A road nearly 100 miles long in northern Honan is about to bring vast mineral deposits, hitherto locked up in the mountains, to the markets of the world, which probably has nowhere any finer anthracite coal than is there worked. It must be remembered, in forecasting the importance of the connection between Chinese railways and Chinese mines, that Baron Richtofen, the leading geological authority on China, estimated that the supplies of Chinese coal would suffice for the whole world's use during two thousand years. —*Straits Times.*

"THE ROAD TO MANDALAY"

In addition to the railway programme sanctioned for Burma, the Lieutenant-Governor, Sir Hugh Barnes, has now suggested to the Government of India the immediate construction of a Southern Shan States railway. It would be a narrow gauge line from the Mandalay railway to Tannggyi, a distance of 112 miles, costing 68 lakhs (£453,333). The line would open up a fertile region suitable for European planting and mining enterprise. The project is warmly supported by the mercantile community at Rangoon.

TROLLEY CAR SAFEGUARDS

The Calcutta Corporation entered into negotiation with the Tramways Company, with the result that experiments were carried out with a contrivance fitted to a motor-car which should be effectual in preventing accidents to passengers. In front of the car was fixed a fender geared by trigger to the level of the platform or catcher, which, immediately on the fender being struck dropped to the ground and picked up anything between the rails at the rear of the car; on the side at which passengers enter was fixed a stout iron guard, making a small angle outwards. This will effectually throw forward from the rails any person who has failed to get into the car while in motion. The experiments were carried out with the aid of dummies, and are regarded as quite successful.

CLAIM AGAINST SEOUL-WIJU RAILWAY

A Seoul telegram states that a claim for 900,000 yen (£90,000) has been made by the French *Chargé d'Affaires* here, for payment of materials ordered from France for use on the Seoul-Wiju railway, concerning which the Paris correspondent of *The Times* writes:—

"The French syndicate, which included the well-known company Fives Lille, obtained a concession for the construction of a railway. Without, however, making any formal protest against what the Japanese are doing, the French syndicate might be legitimately entitled to make certain reservations as to their intention of claiming the execution of their convention with the Korean Government after the close of hostilities. As this would not in any way be directed against the Japanese authorities, it is not probable that they would take exception to it. The statement that a claim for indemnity has been made meets with scepticism in Paris. When some months ago, shortly before the war, the French Minister in Seoul came home on leave in consequence of failing health, M. Delcassé sent to Korea as *Chargé d'Affaires* one of the most distinguished of the junior members of the French diplomatic service, the Vicomte de Fontenay, who occupied at the time an important position at the Ministry for Foreign Affairs. He was selected because M. Delcassé had absolute confidence in his sound judgment and varied experience in diplomacy."

MANCHURIAN RAILWAY

A Russian paper gives the following brief data concerning the operations of the Manchurian Railway from Jan. 1 to Dec. 31 last year. The number of passengers carried was 1,620,000, the greatest number for any single month being 186,000, in September last, when the military concentration in the Russo-Chinese Province assumed large dimensions. Altogether 239,000 passengers were forwarded to Harbin. Merchandise carried over the line amounted to 281,613 tons, 83,710 tons being grain, 28,854 tons manufactured goods and 29,111 tons tea. The gross revenue was 10,907,000 roubles (£1,150,000), showing an increase of 55 per cent. on the previous year; the net profit is not stated.—*L. and C. Express.*

The railway revenue of New Zealand for the year ended March 31 was £2,180,000. This constituted a record, for previous years never exceeded £2,000,000.

The railway revenue of South Australia still shows an increase on last year. The total increase to April 16 was £53,246.

The Deli Railway Company has just distributed a dividend of ten per cent. for 1903.

MACAO-CANTON RAILWAY

The *South China Morning Post* announces that an American-Chinese Syndicate has obtained a concession granted by the Macao authorities to construct a railway from Macao to Canton.

The *Post* thinks that if the Americans decide to dredge Macao or secure an adjacent harbor, it will threaten the supremacy of Hongkong, and urges that immediate action be taken with regard to the Kowloon line.

The head of the syndicate has departed to America to secure capital and arrange for the construction.

TRANS-FORMOSAN RAILWAY

Railway work is now progressing satisfactorily in Formosa. The line from Keeling to Sansaka has already been opened to traffic, and is expected to be extended as far as the north bank of Daian river in the course of this year, at a cost of 600,000 yen. On the southern section, the line already laid down between Takao and Toroku will be brought as far as the south bank of Shokusui river at a cost of 1,400,000 yen. This will also be completed by the end of March next. The trans-Formosan Railway will then be opened to traffic to a length of about 210 miles out of the whole line of 246 miles. Work on the small section between Daian and Shokusui, 36 miles in length, will however be suspended until the next fiscal year.

THE SEOUL-WIJU RAILWAY

The Yongsan-Kaisyong section of the Seoul-Wiju railway has been surveyed, and the construction of the line is being carried out with all possible haste. It is expected that the section will be opened to traffic by the end of next month.

CHINA'S RAILWAY CONCESSION LAW

Mr. E. H. Conger, the United States Minister at Peking, has transmitted to the State Department a translated copy of the revised regulations for railway concessions and construction in China, which were issued a few months ago. His opinion is that "the regulations are illiberal and contradictory, and, if strictly construed and followed, will discourage the investment of foreign capital in Chinese railway building."

PROPOSED CHINESE RAILWAY

The *Tokyo Asahi's* Shanghai correspondent reports that a Belgian syndicate, in co-operation with influential merchants in Hu-nan, Fukien and Che-kiang Provinces, contemplates the construction of a railway from Shanghai to Chang-sha (Hunan), through Hangchow and Kuchow (Che-kiang) and Yuhshan and Nanchang (Kiangsi), connecting the line with the Hankow-Canton Railway. At the beginning of this year, the Belgians, after consultation with the above Chinese, proceeded to Peking and asked the Empress Dowager through a certain Prince of the Blood for permission to build the proposed railway line, offering, if permission were granted, to present the Imperial Court with a sum of 300,000 taels out of the capital 30,000,000 taels. It is said, the correspondent adds, that the concession will probably be granted.

JOHORE RAILWAY

All transactions, we hear (says the *Ceylon Observer*), have been completed for the construction of a railway through the interior of Johore, and it is now only a matter of time before this big work is taken in hand—there being only a few details to settle. To get to Johore, train has to be taken at Singapore for a distance of 14 miles, and then a ferry has to be crossed, and after weary travelling Johore is reached. The present proposal is to join the Federated Malay States and to construct a railway through the Peninsula, the distance being 130 miles. The railway will run from Johore to the boundary of Negri Sembilan. The British, it appears, are very keen on the construction of this railway and want it made as quickly as possible.

HONGKONG, May 30.—The Fatshan-Samshui section of the Canton Railway is to be opened on Wednesday next, the 1st prox.

SHANGHAI, May 19.—The first train with the locomotive "Rosendahl" arrived at the west station at Chinanfu, the terminus of the Shangtung Railway, on the 15th inst.

SIAMESE STATE RAILWAYS

NEW YORK, April 25.—Hamilton King, the United States Minister to Siam, reports to the State Department that he is forwarding to Washington tenders and specifications for a large supply of rolling stock for the Siamese State railways. This covers an order for 187 cars of different kinds and a large number of separate parts, such as brakes and wheels. It is expected that this order will be followed soon by a larger one for locomotives and iron bridges. The Minister has made earnest efforts to have bids for the railroad material opened to the world. Formerly most of these supplies were purchased only from one or two European countries. It is largely due to the efforts of the American Minister that the principle of open bids in all Departments of the Government has been established in Siam. The Minister, however, says that there appears in many instances to be no adequate response to the efforts to obtain foreign markets.

THE CANTON-FATSHAN RAILWAY

This small railway (which in a way runs from Nowhere to Nowhere, the Canton terminus being at a place called Shekwaitong, near Fati, and the Fatshan end about a mile from that city) is evidently paying hand over fist. The two ferry boats (recently bought from the Star Ferry Co., Ld., of Hongkong) which ply between Shekwaitong and the new wharf of the Railway Co., just below the Hongkong, Canton, and Macao Steamboat Co.'s Wharf, are always crowded with passengers, in spite of the fact that the railway cars are still worse than cattle trucks. I hear that the new rolling plant is now on its way out and some will soon be in use. The track is being improved by degrees as ballast is obtainable. The other little railway to Sainam, which is to be run in connection with this, is now being pushed on. It commences on the opposite side of the river further west, and the route is being cleared.

SHANGHAI-NANKING RAILWAY

H. E. Sheng Kung-pao, accompanied by Taotai Chu Pao-fay, co director of the Hu-Ning Railway (Shanghai-Nanking Railway), arrived at Nanking on Thursday morning, the 19th inst., his object being, it is said, to consult with Viceroy Wei Kuang-tao with reference to the completion of a foreign loan of £2,000,000 made by the Railway Company for the immediate construction of the first section of the line, that is to say, from Shanghai to Soochow. In connection with this it may be noted that the further surveying has not been proceeded with for the nonce.

TIENTSIN-CHINKIANG RAILWAY

It is stated in a letter from Peking that the survey of the Tientsin-Chinkiang railway line, which will be divided into four sections, has been completed. Germany now intends to build a separate railway branch from Chinanfu to Chingtingfu, and another branch from Tientsin, passing Techou to the south of Chiyuan, thus forming a connecting link with the terminus of the British Chinkiang railway. If ever this is completed it would be like another branch added out of the original agreement. Governor Chou Fu of Shantung has had repeated telegraphic communications with the Wai Wu Pu on the subject, but as yet no conclusion has been arrived at.—*Sin Wan Po.*

SWATOW-CHAOCHOWFU R.R.

HONGKONG, May 29.—Railways in Southern China are pushing ahead, the latest scheme being for a line of rails from Swatow to the city of Chaochowfu, the seat of the local government, some thirty miles above the mouth of the river Han. It is matter of common knowledge that certain European firms in Hongkong, interested in the coastal trade, have been negotiating with a view to securing an interest in the concession, which has now been acquired by a Chinese syndicate with Mr. Cheong Hsin-Hin as chairman and general manager. So confident is the syndicate of success that no difficulty is anticipated regarding the floating of the capital necessary for the enterprise.—*S. C. Morning Post.*

MACAO-CANTON R. R.

HONGKONG, May 30.—Recently we published an article on the projected railway from Macao to Canton, and pointed out that if the concessionnaires constructed the line promptly, and obtained a deep-water terminus, the railway would seriously menace Hongkong as a rival in its seagoing and its river trade. We stated that the concession was now in the possession of a Chinese gentleman, who was an American subject and who had recently left for the United States on the business of his syndicate. We have taken pains to try to verify this information, and we have succeeded in doing so. The concession was actually obtained by a leading Chinese resident of Macao, who was formerly a councillor in Honolulu, and who is still largely interested in industrial undertakings in that colony. There are less than twenty individuals in the syndicate, and it is instructive to note that although Senhor A. C. Branco, the special Portuguese Minister, came from Europe to negotiate the concession with the Chinese Government, the Portuguese hold but two shares in the syndicate, and these they are reported as having been trying to dispose of. The projected railway will run from Macao through the wealthy and populous district of Heungshan to Canton, there joining the grand trunk line to Hankow and Peking, now under construction. It is the intention of the concessionnaires to take the southern terminus beyond Macao to a suitable place with a deep-water frontage, so that a new port with easy approaches can be created. An agent of the syndicate left by the last Empress steamer for Shanghai to sign the final contract with Sheng Tajen, the director-in-chief of Chinese railways, whose province it is to make railway concessions throughout the Empire. It will be seen that beyond their price for securing the concession, Portuguese interests in the concern are very small.—*S. C. Morning Post.*

THE KOWLOON-CANTON RAILWAY

With some of the remarks of the *Singapore Free Press* recently on the question of the Kowloon-Canton Railway we are most thoroughly in accord. We do not know much about the Crown Agents in this particular, and do not yearn to know anything by experience. If the British Imperial Government, or the Colonial Government, by permission of Downing Street, undertook to make the Railway, they would no doubt call for tenders and not resort to the Crown Agents, who fulfil a useful office in their way, of course, but should not be made intermediaries in such a matter as the construction of a State railway. But with the following sentences from our Straits contemporary our readers will, we are sure, all agree:—"Sir Matthew "Nathan is not only a high authority on "defence, but as a Royal Engineer, as having "served in the Soudan, and governed the Gold "Coast, he knows well the value of improving "rapid communication with the great back "country of China. Let Hongkong take a leaf "out of the book of Russian thorough railway "policy, and at any cost see the line con-"structed out of hand—a double line, too, to "begin with. If the harvest is to be reaped, "there should not be a moment lost in getting "the seed put into the ground." No time should be lost indeed, but for other and still stronger reasons than those named above. Five and a half years have already been lost, and with it a large slice of the prestige Great Britain enjoyed in the Far East formerly as being foremost in every great work and enterprise. Not only so, but her great commercial outpost in Eastern Asia is daily running the risk of finding a rival in the China seas wherein she has been for more than half a century pre-eminent as the distributing centre for the trade of South China.

It is to be hoped that the efforts being made by the local branch of the China Association and by the Hongkong Chamber of Commerce will bear good fruit before long. We want to see the reproach wiped off British enterprise that it is a laggard in the race for concessions for railways; we want to see railways in China which have been constructed by British capital and built with British materials. We want above all things to see the New Territory opened up to trade, and communication by rail between Kowloon and Canton established, and from thence to Hankow and Peking. We want to see Kowloon constituted at once and effectively the seaward terminus of China's great main railway, which will traverse it from the capital to the City of Rams, and thence to the sea. It is especially ours to see that the final section is constructed by British capital and laid by British engineers, and that the work does not drift out of our hands. Other nations are not only eager to secure concessions for making railways in China, but also swift to carry them into effect. The Russians, the Germans, the Belgians, the French, and the Americans are all engaged in the work, and other concessions are being applied for. Only the other day we announced that a railway was being projected from Macao to Canton, and that Chinese capital was freely forthcoming for the enterprise. We now learn that a concession has been applied for, or granted—we are not sure which—to lay a railway from the City of Chaochow-fu to Swatow, thirty-five miles in length, a line that cannot well fail to pay, for traffic is great between the two places. This line should, by good rights, have been placed in British hands, for British interests greatly predominate at Swatow, but we believe it is in the possession of some foreign syndicate. No one can blame other Powers if they are more enterprising and secure the prize first, but it is to be deplored that Great Britain, which was the pioneer in opening up China to foreign trade, and which has always possessed so preponderating a share of that trade, should allow herself to be left so hopelessly in the rear in the matter of railway enterprise. The marvel is that foreign capital and enterprise have not been allowed to construct the tramways in the city of Victoria. It took twenty years to talk about them, but they have at last been laid, and laid so long before being brought into use that the track is being worn away before the cars commence running.—*H. K. Daily Press.*

ore consumed every month ranges from 3,500 to 4,500 tons. Most of the material comes from the Ta-ya mine in China, and it is stated that the foundry has sufficient ore in stock to last one year. The establishment is to be enlarged in November, preparations for which are now being made.

MISCELLANEOUS

THE REMOVAL OF THE KIANGNAN ARSENAL.—The late conference of Chang Chih Tung, Viceroy of Liang Hu, and Wei Kung Tao, Viceroy of Liang Kiang, in connection with the removal of the Kiangnan Arsenal, has been previously reported (says the *Sunwanpo*). It is now understood that the new site for the removal is not desirable, as it is some sixty or seventy li away from Wuhu, where the waterway is shallow and unfit for the transportation of the necessary materials. For this purpose, the site has been finally fixed in Ping Sheng, Kiangsi. The works of the Kiangnan Arsenal will not be interrupted in any way, but will go on as usual. The expenses of the New Arsenal will be defrayed thus: Tls. 700,000 to be curtailed from the annual working funds of the Kiangnan Arsenal. Tls, 200,000 to be raised in Kiangsi and Tls. 100,000 in En Hui, making a grand total of Tls. 1,000,000. The surplus funds of the Kiangnan Arsenal, Tls. 3,000,000 and Tls. 2,000,000 respectively, secured by the late Directors Chao and Mou, will be directed towards paying the contract money for the four war vessels as ordered to be constructed in Japan.

A NEW MINT, HONGKONG, June 16.—A dispatch from Changsha, the capital of Hunan province, states that His Excellency Chao Erhsen, the retiring Governor of that province, has purchased through a foreign firm in Shanghai the plant for a large mint said to be capable of striking two million copper ten-cash pieces every twenty-four hours; the price of the machinery, etc., being something like £30,000. In connection with the mint the weiyuan, or official representing the Governor of Hunan, who has been conducting the above negotiations, is said to have purchased in Shanghai a large quantity of copper sufficient to last the mint one year, while working in the ordinary way. The mint is expected to be in working order by next October.

NEW MACHINERY AT LUNGHUA.—At Lunghua a set of cartridge controlling machines has recently been erected and the machines, the like of which have never before been supplied to China, are surpassing even the greatest expectations of managers and workmen, who are quite enthusiastic over the plant. We understand that the machines come from Messrs. Schuchardt & Schutte, of Berlin, who have also supplied to the arsenal cartridge clip machinery and a complete plant for the manufacture of gun-stocks.

SURVEY, NEGRI SEMBILAN.—Great difficulty has been experienced in obtaining surveyors, and at the moment of writing (early in 1904) the Revenue Survey Staff is four short of its proper number. Application has been made both to the Crown Agents and to the Government of Victoria for suitable men. None have been forthcoming from Australia. It is a serious matter to planters who wish to start rubber cultivation to be kept waiting for the survey of their land to be put in hand. With the present staff of surveyors, however, it has not been found possible to expedite matters. It is hoped that this will soon be remedied. A new map of the Negri Sembilan, prepared in the Revenue Survey Office, has been printed by the Ordnance Survey Office, Southampton, for the Government, and is a most useful and creditable production.—*From Administration Report.*

SURVEY, HONGKONG.—The survey of the new territory and islands, a detailed report of which is published in the Government Gazette, has, in spite of the broken and ragged nature of most of the country, been proceeding rapidly, and, up to April last, 4,073,795 acres had been surveyed.

WOOD WORKING MACHINERY, SCHOOL OF ARTS AND TRADES, MANILA.—During the coming year it is expected that a complete outfit of wood-working machinery, with electric power, will be installed in connection with the wood-working department.

CREMATORY, SINGAPORE, May 12.—A petition is being sent round for signature urging on the municipality the advisability of providing a municipal crematorium. The originators of the petition, who propose to bring the matter before the municipal commission for discussion, have the opinion which they share with many others here, that the time has arrived when a more sanitary method of disposing of the dead should be adopted here.

CREMATORY, CALCUTTA.—The plans, specifications and estimates for the Calcutta crematorium have all been passed, and the building contracts were to have been settled by the middle of last month. The ground has already been enclosed by a substantial high wall, and it is expected that within three or four months the whole work will be completed.

MARINE ENGINES FOR AUSTRALIA.—The Standard Motor Construction Co., of New York, of which Lewis Nixon is president, has secured a contract for three marine engines for export to Australia. The shipment has been made.

The Power & Mining Machinery Company, No. 52 William street, New York, has just secured a large New Zealand contract.

A Shanghai dispatch states that two Chinese officials, the Taotais Chang and Key, who purposed to visit the United States to buy machinery for the Government arsenal at Sze Chwan, have changed their minds, owing to the restrictions enforced at San Francisco upon incoming Chinese, and will now go to England to make their purchases.

PNEUMATIC TOOLS, INDIA.—The Chicago Pneumatic Tool Company has secured some substantial contracts for pneumatic tool equipments to be installed in Indian Railway shops. The company's Indian business is handled through MacBeth & Company, of Bombay, which concern purchases fair-sized lots of various American machinery.

ARMS FOR CHINA.—An order for 15,000 rifles and a million or so of cartridges has been booked by a local German firm lately. It would be interesting if we could get a precise return of all the arms ordered within the past year by China.—*P. and T. Times.*

PORTLAND CEMENT, F. M. S. RAILWAYS DEPT.—The F. M. S. Railways have advertised for tenders for the supply of Portland cement, for the service of the road during the third quarter of 1904. Tenders closed June 24th, at General Manager's office at Kuala Lumpur.

MOTOR CARS, CEYLON.—The possibility of motor-car services in Ceylon is now engaging the active attention of Government, and an engineer, specially deputed, has just inspected the roads to Batticaloa and Trincomalee, which are reported to be in good condition, but the bridges are weak for the purpose.

MACHINE TOOLS, OSAKA ARSENAL.—The John Steptoe Shaper Company of Cincinnati, Ohio, has lately secured a substantial contract from the Japanese Government for various machine tools, to be installed in the Osaka arsenal.

THE OSAKA GAS COMPANY, OF OSAKA.—Japan is inquiring in this market for 5,800 tons of 24-inch, 20-inch, and 16-inch cast-iron mains, which will represent about thirty-five miles of pipe. One hundred and fifty tons of special pipe are also required and 4,000 feet of steel mains for bridge crossings. The pipe will be of 24-inch, 20-inch, 16-inch, 12-inch and 8-inch size.

THE CRANE COMPANY OF Chicago-New York, offices 490-502 Cherry street, has secured a large Japanese contract for its specialties.

RAILWAYS

THE HAICHENG FENGHWANG RAILWAY.—Between Fenghwang and Liaoyang there are two routes. One, the northeastern route, lies among the hills where the Japanese conducted such an arduous campaign on their pretended advance to Moukden in the winter of 1894-5. Here are the mountains of Lienshan and Matinglung, negotiable only by passes where a small force can hold an army in check. The other route is by the south-east; a somewhat circuitous route but traversing comparatively level country. From Fenghwang it goes to Sunyuen and thence to Haicheng, a station on the railway south of Liaoyang. Students of the war of 1894-5 will remember that while Major-General Tatsumi penetrated into the mountainous region from Fenghwang and held Sung's army engaged there, Lieut. General Katsura led an army by the route to Haicheng. Recently—that is to say when the Russians were still masters of the situation in Manchuria—news came that a contract had been made by Viceroy Alexeieff with Chinese industrials to build a railway from Haitien to Fenghwang via Sunyuen, and that the work had actually commenced. News now comes that it has been abandoned. Any one can appreciate the great difference that such a railway would have made in the situation, had it been built before the sword was drawn. Alexeieff could have carried his men by train to Fenghwang where they would have been within 40 miles of the Yalu.

TIENTSIN-CHINKIANG RAILWAY. — The survey of the Tientsin-Chinkiang railway line, which will be divided into four sections, has been completed. Germany now intends to build a separate railway branch from Chinanfu to Chingtingfu, and another branch from Tientsin, passing Techou, to the south of Chiyuan, thus forming a connecting link with the terminus of the British Chinkiang railway. If this is completed, it would be like another branch added out of the original agreement. Governor Chou Fu of Shantung has had repeated telegraphic communications with the Wai Wu Pu on the subject, but as yet no conclusion has been arrived at.

CHAPOO-POOTUNG RAILROAD, TIENTSIN, June 6th.—A number of prominent Chekiang Chinese and a German merchant have formed a syndicate and applied to the Peking Government for permission to construct a line of railroad from Pootung to Chapoo.

Another concessionaire has applied for right to build a line between Changsha and Chenchow via Changte in Hunan.

The Board of Commerce has sanctioned both lines.—*Shanghai Times.*

THE CH'UAN-HAN, OR SZECHAN-HANKOW RAILWAY COMPANY, which has been started under the auspices of Viceroy Hsi Liang, of that province, according to a Chungking dispatch, will begin work next July by surveying for a preliminary line from Chengtu, the capital of Szechuan, to Chungking, the most important commercial port of the province.

Owing to the completion of the Chiao-Chanchinan railway, which is about 800 li in length, the Chief Engineer has made a representation to the Governor of Shantung, asking permission to construct a branch line from Tung-kuan to Hsiao-chiag-ho, about 3 li distant. The Director of the Bureau of Commercial Affairs at China has been instructed to devise means to procure funds for this line, which will be under Chinese control, though the material will be purchased from Germany, in accordance with a clause inserted in the agreement between the Chinese Government and the German Railway Company some time ago.

THE SWATOW-CHAO-CHOW-FOO RAILWAY.—Twenty-three Japanese are said to have arrived at Swatow to commence operations on the railway to connect that port with Chao-chow-foo.

PROPOSED SWATOW RAILWAY

In his report on the trade of Swatow for 1903, Mr. Acting Consul Willis writes:

Railway.—As an instance of the wealth amassed by certain Chinese emigrants I would mention that the concession of a long mooted railway between this port and Chao-chou-fu has been granted to a Chinese merchant who has been for some years resident in the Ducth Indies, and I am informed that the whole capital for this enterprise, as well as that for the establishment of a proposed National Bank of China, in which the same man is largely interested, has been subscribed by Chinese in the Straits Settlements and Dutch East India colonies. The route of the proposed railway was to be surveyed this spring by a Chinaman trained on the Tientsin-Newchwang line,and the concessionaire estimated that the whole undertaking might be finished within two years. The trade of the district would doubtless receive a much needed impulse should he railway ever become an accomplished fact, the local waterways, especially between the port and Chao-chou fu, the chief distributing centre of the district, being extremely shallow during the winter season.

A PROJECTED RAILWAY, ICHOUFU, May 13.—It is reported that the Taotai of this intendancy, P'eng Tajen, is raising the capital to build a railway from the Ihsien coalsfield to T'aierchuang, on the Grand Canal. We are much interested in the projected undertaking, in view not alone of the degree of enterprise thus shown by one of our officials, but also of the nearness of the places named, each of which is some 180 li south-west of Ichoufu. There are evidences even in Southern Shantung that the spirit of the West has been wafted to the East. It is said that the projector has already raised $160,000 with which to begin the work of building this line.—*N. C. Daily News.*

H. E. Sheng Kung-pao and Taotai Chu Pao-fay, Co-Director of the Hu-Ning Railway (Shanghai-Nanking Ry.), recently returned to Shanghai from Nanking, where the arrangements with reference to a loan of £2,000,000 for the above line were completed. In connection with this it may be noted that the further surveying of the line from Soochow to Chinkiang has not been proceeded with for the nonce.

THE HANKOW-CANTON RAILWAY

RESIGNATION OF DIRECTORS.

Brussels advices state that Colonel Thys and M. Devolder have sent in their resignations as directors of the Hankow-Canton Railway.

It seems that the Congo Railway Company has been unable to obtain settlement of a claim against the Congo Free State of 5,000,000f., and has instituted legal proceedings for the recovery of this sum. The case is up for trial, and as Colonel Thys and M. Devolder as directors of the Congo Railway are virtually plaintiffs against the King in the action, they could not continue as directors in the American-Chinese Company, in which his Majesty is largely interested.

Several newspapers state the cause of their resignation as follows:—The concession was to be shared by Americans, to whom Colonel Thys and M. Devolder were sent by the King of the Belgians some months ago with instructions to treat on certain conditions. When these gentlemen, on their return, announced that they had concluded the negotiations, his Majesty informed them that he had changed his mind, and this was the reason why they resigned.—*Hongkong Press.*

CANTON & HANKOW R. R. AN AMERICAN INSTITUTION

WASHINGTON, May 11.—The administration has concluded to continue to recognize the Canton Railroad as an American institution, notwithstanding the fact that a majority of the stock of the corporation recently passed into the hands of Belgian capitalists. This company was organized under the laws of New Jersey, and a majority of the original stock was held in this country.

The recognition involves the protection of this property by the United States Government in case of need. The Belgian stockholders, it is said, are very desirous that the United States shall assume this attitude toward the road, as there is some danger the property may come into conflict with the interests of some European nations which are extending their spheres of influence in China. It is said there is precedent for the manner of action decided on in the case of the Panama Railway Company, organized under an American charter, but the control of which passed into French hands for a term of years, notwithstanding which our Government regarded it as an American corporation.

All the preliminaries to the building of the Shanghai-Nanking railway are now settled between the Chinese authorities and the British concessionaires, and work on the line will be commenced at once.—*Hongkong Telegraph.*

FREIGHT CARS, CANTON-HANKOW R. R.—The Wason Manufacturing Company, of Springfield, Mass., has secured a contract for fifteen passenger and freight cars for use on the Canton-Hankow Railroad.

JAPAN

THE KOREAN RAILWAYS.—It would appear that the Japanese railway between Seoul and Fusan in Korea is nearly completed to a length of about 153 miles. On the northern section, a line, 71 miles in length, from Seoul to Chyong-eui, was opened to traffic on the 29th of last month, and is expected to be brought as far as Pu-kang, a distance of 20 miles from Chong-eui, in a week or two, while rails have already been laid down to a length of 62 miles between Fusan and Syong-hyoa of the southern section. The central section, having a length of 120 miles between Syong-hyoa and Pu-Kang, will have its earthwork finished by next month, and the work of railing in that section will be completed in November next, if nothing unforeseen occurs to interfere with the progress of the work.

Work on the construction of a Japanese military railway between Seoul and Wiju is being pushed forward. The earthwork of the Seoul-Kaisyong section will be finished by the 10th of next month, and the rails now being landed at Masampho will be laid down on the section, which is expected to be opened to traffic early in September next. The line beyond Kaisyong will be completed by the end of May next.

SANYO RAILWAY EXTENSION, JAPAN.—Two undertakings are projected by the Sanyo Railway Company of Japan which will result in the purchase of several locomotives as well as a considerable tonnage of rails, etc. The company proposes to build a line between Shimonoseki and Fusan stations—a distance of about 120 miles and an extension of the railway from Asa station, Yamaguchi prefecture, to the coal mine at Onine-Maru, located in the same prefecture. The length of this section will be about thirteen miles. Japanese advices state that two and a half million yen (about $1,250,000) will be required for the schemes. The question of finances will be discussed at the half-yearly meeting of shareholders, which was scheduled to be held May 17. The Japanese Government will guarantee payment on the 2,500,000 yen at 6 per cent. per annum.

RAILROAD EXTENSION, JAPAN.—The *Chugai Shogyo* understands that, in compliance with the request of the Shinshu filatures, the authorities have decided to extend the government central eastern railway from Fujimi to Okaya, a distance of 16 miles 76 chains, at an estimated cost of 780,000 *yen*. The projected section will be completed by May or June next, and will comprise five stations to be established at Kanazawa, Kayano, Kamisuwa, Shimosuwa, and Okaya.

NEW GOVERNMENT RAILWAYS, JAPAN.—The Government railways which are to be opened to traffic this year are as follows:—

The O-u Northern:
From Omagari to Wada.
The O-u Southern:
From Shinjo to Innai.
The Central Eastern:
From Nirazaki to Fujimizaki.
The whole of the Maizuru Railway.
The second track of the Tokaido:
From Horinouchi to Kakegawa, and the bridge of Hamana Lake.

NEW RAILWAY, JAPAN.—It is reported that on the 26th ult., the Yokohama Railway authorities applied to the Government for leave to construct a railway between Yokohama and Hachioji. The line will probably start from Nakakido, Kanagawa, where a station, to be connected with the Yokohama station of the Government Tokaido Railway, will be established. The line will be made an elevated one to a certain point.

TRANS-FORMOSAN RAILWAY.—The Sansagawa-Daiankei Section of the Trans-Formosan Railway, now in process of construction, is only 7 miles and a half long, but has seven tunnels and two bridges, the dimensions of which are as follows:—Tunnels, No. 1, 725 ft., No. 2, 2,376 ft., No. 3, 1,702 ft., No. 4, 180 ft., No. 5, 812 ft., No. 6, 746 ft., and No. 7, 4,112 ft.; Gyotoghei Bridge 700 ft. and Rigyotan Bridge 580 ft. The first tunnel has been completed and the second is in course of construction. Work on the remainder has not yet been commenced.

Some time ago the Hokkaido Railway Company decided to issue debentures to the value of 1,160,000 *yen*, but the measure was postponed owing to the uncertainty of the diplomatic negotiations then ensuing between Japan and Russia. The construction of the railway is rapidly progressing, and the whole of the line is expected to be opened in November next. It is reported, however, that the Company is urgently in need of funds and is negotiating with certain bankers with a view to the flotation of debentures.

Difficulty is being experienced by the Koya Railway Co. in getting through with its ordinary general meeting, which was to have been held last month. The meeting was called and the shareholders attended, but there was so much disorder and confusion that it was postponed. The adjourned meeting was convened for the 20th inst., but had again to be postponed owing to the absence of auditors.

The Sanyo Railway Co. held a directors' meeting on the 20th inst., when it was agreed to redeem by ballot Y50,000 of the loan bonds amounting altogether to Y175,000. The appropriation of 50,000 new shares on account of the increase of capital was fixed for August 2nd, Y2 per share to be paid as guarantee.

The Kuchi-an tunnel (3,300 feet), one of the two great tunnels on the Hokkaido Railway, has been finished. Inaho tunnel (5,800 feet), the other one, has been bored to the extent of 5,591 feet, and is expected to be completed early next month.

The extension of the Hokuyetsu Railway from Mettari to Bandai-bashi has been completed and will be opened to traffic shortly. Niigata will then be the northern terminus of the railway.

LOCOMOTIVES, JAPAN.—The Baldwin Locomotive Works of Philadelphia have just secured a contract for fifteen locomotives, to be shipped to Kobe, Japan, with all possible dispatch.

ICE MACHINERY, INDIA AND JAPAN.—The Henry Vogt Machine Company, of Louisville, Ky., recently secured orders for ice and refrigerating machinery for shipment to India and Japan.

The Japanese in constructing the Seoul-Fusan Railway are said to have struck a rich deposit of copper about 170 li from Fusan. A little further on they came across a fine vein of coal.

The Kyushu Railway Company of Japan has deputed three officials to visit Europe and America for the inspection of railways.

RAILROADS

MALACCA RAILWAY.—At a meeting of the Legislative Council, held at Singapore, July 2nd, the Colonial Secretary moved "That this Council approves the expenditure of a further sum of $400,000 on account of Special Services, Malacca, Item No. 9, Malacca-Pulau Sebang Railway, of the Public Works Department Budget, in addition to the amount already voted in the Supply Ordinance 1903, for this service." In the estimates of expenditure for the current year, he said, there was the provision of $600,000 towards the construction of the Malacca Railway. The work of construction appeared likely to proceed at a much more rapid rate than had been anticipated when the estimates were prepared. Indents had been sent home for rolling stock, etc., covering a cost of over $500,000. It would be evident to the Council that much more than $600,000 which had been provided would be required during the current year, and they now asked for an additional $400,000. The total revised estimate of the railway exceeded two millions.

The Colonial Treasurer seconded and the motion was adopted.

THE KUNLON FERRY ROUTE TO CHINA.—It is strange how quietly British merchants seem to have acquiesced in the idea, promulgated at the time of his visit to Burma by Lord Curzon, that it would be a useless expense prolonging the Burma Railways from the Northern Shan States to the Kunlon ferry, because of the insignificant amount of trade that might be expected after the line had been laid. It is not in this spirit that Russia lays down her railways, and had the same policy prevailed in Africa, we should not now have placed Uganda in communication with the sea. The British Government being composed of men who are not traders, it is difficult for them to recognize the importance of commercial matters. The Kunlon ferry itself is not perhaps a place where there is much trade at the present time. But it is close to the Chinese frontier, and we may be certain that if it were within railway communication with Rangoon, it would rapidly develop into a place of considerable commercial importance. Russia, France, and Germany are doing all they can to push their Chinese trade, and England should certainly not be behindhand in securing what she can. There are no doubt more remunerative railway projects within our own territories which are now being taken in hand. But the extension of the Burma Railway system to the Kunlon ferry is of political importance, and would also, if it were taken in hand, probably prove remunerative in a few years.—*Rangoon Times.*

THE CANTON-HANKOW LINE.—It is reported that the Director General of Southern Railways has telegraphed to the Board of Foreign Affairs that he has received a telegram from Mr. Fuguson(?) saying that although the government of the United States recognizes that it has power to manage the affairs of the American Company known as the Huamei Hosin Kungssu, which is now undertaking the construction of the Canton-Hankow trunk line, it has neither power to prohibit American companies from selling their shares to foreign capitalists nor restrain them from accepting foreign capital, so that the government cannot do anything except with regard to the sale of part of the shares to Belgians. At the conclusion of the telegram the Director General says the cancellation of the agreement signed five years ago between the Chinese Government and the promoter of the said company cannot be achieved at present, but possibly some of the articles can be altered so as to retrieve some of the lost advantages.—*P. and T. Times.*

NEW RAILWAY ROUTE TO CHINA.—*Vienna to Shanghai in Eight Days.*—In an Austrian review Dr. Convall Spatzier outlines a project for a new railway route to China. The route of this new railway, starting at Constantinople, crosses the Bosphorus to Haidar Pasha by the proposed Abdul Hamid Bridge or by ferry-boats, utilizes the Anatolian system, actual and projected, to Erzerum, passes from the basin of the Euphrates into that of the Aras, follows this valley to the plains of the Kura, passes along the southern shore of the Caspian Sea, ascends the valley of the Atrak, then beyond Kuchan, passes into the valley of the Keshef Rud, crosses the Hari Rud on a bridge, follows the upper course of the Amu Darya, passing through Faizabad (1,060m.) and the valley of the Kokcha, till it enters the Pamirs. Here the difficulties become serious, but not insuperable. The line passes through Ishkashim (2,650m.), ascends for 300km. the valley of the Panji till at a height of 4,000m. (its highest point, which would be lessened by a tunnel), it passes from Afghan territory to Chinese territory on the Tagh-dum-bash Pamir. There the line would descend 2,000m. in 150km., and the plain of Eastern Turkestan at a height of 1,350m., and would form a difficult section to construct, but not a problem impossible to solve. From that point the line passes through the Cherchen valley and skirts the tableland of Tibet, passing through Tsaidam (500km.) (2,830m.), and then south of the Kuku-nor reaches the basin of the Hwang-ho. After following the valley of the Hwang-ho (2,620m.), it passes above Kung-chang into the valley of the Wei-ho, through Si an-fu, and arrives at the great bend of the Hwang-ho at Tung-kwan, and follows along the right bank to the Yangtsze. From that point one branch leads to Peking, while the other quits the valley of the Hwang-ho and proceeds to Yangtsze, which it reaches twenty kilometres below Nanking, and thence across the river and onward by rail (265km.) to Shanghai, or down the river (320km.), to Wosung, the outport of Shanghai.

At the Yangtsze, where the line quits N. and S. the Hwang-ho, a branch would join this route to the Canton, Hankow, and Peking system. Thus the commercial towns on the Pacific would enter into railway connection with the inland towns of the empire.

Dr. Spatzier discusses the time the journey would occupy by this route to the Far East. From Vienna to Wosung the approximate distance is estimated at 11,920km.; from Vienna to Peking, 11,646km. Taking for his standard of speed the express from Paris to Marseilles, 863km. in 12 hours 50 minutes, say, 67km. an hour, or 1,610km. a day, with twelve stops, he finds that the time of transit would be 7 days 14 hours and 7 days 10 hours from Vienna to Shanghai and Peking, in place of 17 days 8 hours estimated for the Trans-Siberian route,

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THE DIRECTOR-GENERAL OF SIAM'S RAILWAYS.—Mr. Hermann Gehrts has how retired from the position of head of the Royal Railway Department, and he left Siam for good by the *Deli* this afternoon. The Department had been formed about a couple of years before his arrival in the country, but the actual work of construction was only beginning when he came, so that he has had an important share in framing and carrying out Siam's railway policy, and his departure breaks a link with the past in the local railway world. Mr. Gehrts arrived in Siam in January, 1893, to take up the post of superintending engineer, in charge of the technical office and the Bangkok section of the first State line. On the death of Oberbaurat Rohns, Mr. Gehrts succeeded him, on the 28th September, 1894, as Secretary and Chief Engineer. Mr. Gehrts was the third to hold that position in the Department, Mr. Rohns having been preceded by Mr. Asmann. Moreover Mr. Gehrts is fortunate in being able to retire after his eleven and a half years service, while still comparatively young and vigorous; his two predecessors in the second position and his one predecessor at the head of the Department all died in Siam. On the lamented death of Mr. Bethge, Mr. Gehrts was promoted to the post of Director-General, on the 3rd May, 1900. Since he has been in the Department there have been constructed and opened to traffic the 309 kilometres of the Korat and Lopburi lines, and the 151 kilometres of the Petchaburi line—a total of 460. At the present moment the work of laying the rails is going on along the Lopburi to Paknampoh section of the Northern line, earth-work and bridge-work on the Paknampoh to Pitsanuloke section, and surveys on the section from Pitsanuloke to Utaradit and Lakon Lampang. From the beginning of January to the end of April, in 1901, Mr. Gehrts was in the north making a personal survey of the possible routes for this line. It was then that the route was finally decided on. From Paknampoh he went up by Raheng, Muang Tern, Lakon, Muang Ngao, Prayao and Chiengrai to Chiengsen and across the Mekong there, and returned by Wieng Papao, Lakon, Chiengmai, Lakon, Phrae, Utaradit and Pitsanuloke, so that he was over both the main branches of the river. He decided that from Utaradit the line must run to Lakon direct, not via Phrae. Since then Mr. Gehrts has been twice to Pitsanuloke and once to Utaradit in 1903 and 1904. Siam has not been unappreciative of his services, as is shown by the fact that he has received from His Majesty the 3rd class of the order of the White Elephant and the 2nd Class of the Order of the Crown of Siam, with star. Mr. Gehrts is going home across India, and is proceeding in the first place to Darjeeling, where he will make a short stay.

Mr. L. Weiler has been appointed to succeed Mr. Gehrts as Director-General of Railways. They came out to Siam together in 1893, and Mr. Weiler was for five years in the Dong Phya Fai—section engineer in Pakpreo and Hinlap—so that the new Director is not without knowledge of the country. From Siam Mr. Weiler went to China as Superintendent Engineer on the Shantung Railway, and more recently he held the position of Chief Engineer in Asia Minor in the Turkish service.—*Bangkok Times.*

HANKOW-SZECHUAN RAILWAY.—A Peking despatch, dated the 23rd inst., states that keen competition exists between the British and French agents to obtain the right for the construction of a railway from Hankow to Szechuan in South China. The said agents have approached the Chinese provincial authorities, through their respective Consuls at Chung-king, but their efforts have been fruitless. On the other hand, the above Chinese authorities have organized a body entitled the Hankow-Szechuan Railway Company, which intends to build the railway with Chinese capital raised in Szechuan province. At the same time the British and French Ministers at Peking have been asked to notify their respective nationals that there is no possible hope for either of the parties to secure the concession. The message further says that the Chinese authorities have dispatched 14 students to Belgium and several others to Japan in order to study the railway systems of those countries, while several commissioners have been sent to Shanghai and Hankow for a similar purpose. Referring to the above, the Peking correspondent of the journal believes that, if the foreign agents combine, no difficulty will be experienced in obtaining the right of construction of the above railway.

THE GERMAN SHANTUNG RAILWAY.—At the general meeting of the Shantung Railway Company held at Berlin on June 1st, it was announced that a cablegram had been received to say that the whole of the line between Tsingtau, Weih-sien, and Tsinan-fu was thrown open to traffic last Tuesday. In the report for 1903, issued by the management, great stress is laid upon the further development of the railway in the following terms:—"Of the greatest importance for the future development of the traffic of the Shantung Railway is, on the one hand, its connection with sea trade, owing to the German settlement at Tsingtau having entered the ranks of the ports of Eastern Asia, and, on the other hand, its connection with the railway lines in the interior of China."

The report refers to the projected railway which is to be built by the Chinese Government from Tientsin to Tsinan-fu, and thence to Chinkiang, near the mouth of the Yangtse-kiang, with a terminus at Shanghai. At Tientsin this projected line will join the Northern China Railway; this junction will bring about a through line of railway between Peking and Tsingtau, and such a line will be of immense importance during the season in which the navigation of the Gulf of Pechili is closed by ice. "Moreover, at Tientsin the line will be brought into direct communication with the Manchurian Railway by way of Shanhai-kwan and Newchwang, and thereby the Siberian Railway will be reached, so that then travellers will be able to go by rail from Berlin to Tsingtau." The receipts of the Shantung Railway in 1903 amounted to 442,239 dollars, and the total expenditure to 289,253 dollars.

JOHORE STATE RAILWAY.—Singapore, July 3rd.—At last the construction of the Johore State Railway has been definitely decided upon. Mr. C. B. Buckley, Financial Adviser to the Johore Government, yesterday received a telegram from the Dato Abdul Rahman giving the news that the Convention had been signed, and that all arrangements were as satisfactory as possible. This means, broadly, that in four or five years at the utmost we may expect a through train service from Singapore to Penang—120 miles of the run, from Johore to Gemeh, being through the Sultan's territory. This section is to be known as the Johore State Railway and will be owned by the State of Johore, but it will be constructed by the F.M.S., the Johore Government paying interest to the F.M.S. on the cost of such construction. When completed, the line will be managed by a joint board of control composed of officials from Johore and the F.M.S.; but that is a matter of detail. It may not be generally known in connection with this new Convention that surveyors from the F.M.S. have been working on both ends of the route since January last; when, acting on the assumption that the Convention would be speedily signed, and with the acquiescence of the Johore Government, the F.M.S. sent down detachments of these pioneers of railway construction, who are still hard at work on the northern section from Sagamat to Gemeh on the boundary line. The terminus of the line will be near the Saw Mills, and there will be no bridge across the Straits. The scheme for this proposed structure was abandoned on the advice of the expert who came from India to make surveys for the project. His judgment was to the effect that the place is an ideal one for a ferry, and a bridge would be an inexcusable extravagance just now. The ferry will carry the train bodily across the Straits to join the Singapore Railway on this side, so there will not be any extra handling of through freight from the Peninsula to the Docks at Tanjong Pagar. The signing of this new Railway Convention between Johore and the Native States marks an incident of vast importance in the development of British Malaya.—*Straits Times.*

AUSTRALIA, LAND GRANT RAILWAY.—Australian advices just to hand state that so far no tenders have been received by the South Australian Government for the construction of the land grant railway between Oodnadatta and Port Darwin. Tenders were due May 2. —*N. Y. J. of C.*

There are curious rumors circulating among the Chinese on the subject of railways in southern China. We understand from several sources, other than native, that the proposed railway from Macao to Canton is not likely to be commenced yet awhile. There has been what is described as "a hitch in the negotiations." The Portuguese representative of the Macao syndicate has left Shanghai, after unsuccessful interviews, and proceeded to Peking to appeal to the Chinese board charged with the control of railway concessions. Sheng Ta-jen, the commissioner of Imperial Chinese Railways, is reported to be somewhat opposed to the Macao syndicate, he desiring to see a few more Chinese who are not foreign subjects interested in it before giving the scheme his approval. There has certainly been opposition from Canton, whether inspired by the Viceroy Shum or by Sheng's representatives. The Chinese are uneasy concerning the sale of the Canton-Hankow Railway concession shares to French and Belgian buyers, and their feeling is developing into strong opposition. Operations in connection with the Swatow to Chao-chow-fu Railway, a small line on the coast, though supposed to be almost entirely in native hands, have been suspended on account of official representations. One rumor, which is most prevalent, affects the British, as it is to the effect that the Peking Government is not now in favor of granting permission for the commencement of the Chinese section of the Canton-Kowloon Railway, but that Viceroy Shum should undertake the construction of this line, the Macao-Canton line, and the Canton Waterworks, on behalf of the Imperial Government, instead of allowing foreigners to work such concessions. These are curious rumors, and, the Chinese Government having granted a concession to the British syndicate to construct a line to Canton, it is difficult to see how they can withdraw it if they so desire, unless they have the power, which may be retained in the shape of a time clause. The average resident is not likely to seriously worry his soul concerning the builder, providing he sees outward and visible tokens of a railway before retiring in due course of time to the old country on a competence.

THE PENANG HILLS RAILWAY.—The works are progressing satisfactorily, and the earth work is practically completed. The rails have been laid about half way up the Hill, and rails for the upper half are now being hauled up before the laying is commenced; about half the pipes for the hydraulic installation have been laid, and the machinery has been erected, including the Pelton wheel.

The system is that of a cable railway, with the power at the bottom of the Hill. Two cars will be attached to the cable, one ascending while the other descends. Each car will take ten or twelve passengers, and make the journey in about ten minutes. Facilities will be provided for carrying goods and bazaar baskets. There will be one station at the top of the Hill and one at the bottom, and passengers will be able to alight at any point between them by informing the conductor, in the same way as in the ordinary street trams. The fares are under consideration just now.

The number of trams running daily will depend on the amount of traffic, but it will be possible to run one car up and one down every quarter of an hour.

The length of the railway is about one mile and a half, and when finished it will, I believe, have the distinction of being the longest cable hill railway in the world. Arrangements are being made for an electric tramway from town to connect with it at the bottom.

Work upon the railway was commenced in the beginning of November last year, and will probably be completed about the end of August. Mr. C. E. Paterson is superintending the earth work and plate laying. No unexpected delays have been met with, and there have been no serious accidents to any of the workmen.—*Penang Gazette.*

PROPOSED CANTON-MACAO RAILWAY.—A Peking letter states that a Portuguese gentleman is now in the capital trying to get the permission of the Shangpu and Waiwupu to construct a railway between Macao and Canton. It seems that this gentleman first went to Shanghai and approached H. E. Sheng Kung-pao with the object of making the proposed railway a private one, and a modus vivendi had even been settled upon, when, it is reported, H. E. Viceroy Tsen Ch'un-hsuen of Canton wrote to H. E. Sheng Kung-pao, asking the latter to delay signing any agreement concerning the railway. The Portuguese gentleman, therefore, wearied with the delay in getting things settled in Shanghai went to Peking to work his scheme officially through the Boards of Commerce and Foreign Affairs.

PROPOSED RAILWAY, F. M. S.—We have it on good authority that an enterprising firm has submitted a scheme to the Government to run a railway line between Penang and Grit, the capital of Upper Perak and the New Territory. This has been recommended by Mr. W. P. Hume, the then District Officer, New Territory, and now the Acting Senior Magistrate at Ipoh. It is understood that, the distance between these places being so very short, the Government will favorably consider the scheme.—*Straits Times.*

THE PEKING-CHINKIANG RAILWAY.—The Tsingtao correspondent of the *N. C. Daily News* writes that there seems to be a hitch somewhere in this contract which was given to a German-English syndicate, work to be begun as soon as the Tsingtao-Chinanfu line was finished. Surveying had begun, and the engineers were ready to begin work on both ends of the line. Now the contracts of the engineers have been cancelled, and they are leaving next month for home. It is supposed that there is some trouble with the Chinese.

SEOUL-FUSAN R. R.—It is reported that the Japanese company which is constructing the railway between Seoul and Fusan is now making arrangements to inaugurate traffic on the sections already completed. On the western section, a length of 83 miles from Seoul to Pukang is nearly completed, while rails have already been laid down to a length of 70 miles between Fusan and Taiku. Traffic on these lines is expected to be opened to the public either at the end of September or early in October next. The total length of the railway will be 273 miles.

KYUSHU RAILWAY EXTENSION, JAPAN.—The arrangements having been made for the extension of the Kyushu Railway line from the Urakami station as far as the reclaimed land at Deshima, Nagasaki, the Company is reported to have recently applied to the authorities for permission to take the work in hand. The fund for the undertaking is estimated at Yen 800,000, exclusive of that for the construction of a large station at Daikoku-machi.

YOKOHAMA RAILWAY EXTENSION.—It is announced that the Yokohama Railway authorities have applied to the Government for leave to construct a railway between Yokohama and Hachioji. The line will probably start from Nakakido, Kanagawa, where a station, to be connected with the Yokohama station of the Government Tokaido Railway, will be established. The line will be made an elevated one to a certain point.

The Bombay-Baroda and Central India Railway Company have obtained sanction to carry out a survey of a proposed line of railway from Hansi Station, on the Rewari-Ferozepore Section of the Rajputana-Malwa Railway, to Jakhal Station, on the Southern Punjab Railway, a distance of 49 miles. The survey is placed under the control of the Government of Bombay.

SHANGHAI-NANKING RY. LOAN.—London, July 14.—The *Morning Post* says that a Chinese Imperial railway loan of £2,250,000 was issued to-day at 97½, bearing interest at five per cent. The loan is for the construction of a line from Shanghai to Nankin, and subscribers will receive one-fifth of the net profits of the railway.

FLAT CARS, KOREA.—A considerable number of second-hand flat cars are to be shipped through the Japanese house of Mitsui & Company, 445 Broome street, New York, and the American Trading Company, for use on the Seoul-Fusan Railroad, Corea. They will go over the Great Northern and Southern Pacific lines.

SHANGHAI, June 18th.—Work on the Shanghai-Nanking Railway has been suspended owing to deficiency of capital since the conclusion of the contract. Recently an agreement was made between the Chinese officials and a syndicate, so that the work will be soon recommenced.

TSAO-CHOW-SWATOW RY.—It is announced that the construction of the Tsao-chow-Swatow line of rail in Eastern Canton province will start as soon as the required capital has been fully subscribed by Chinese merchants and officials at Canton, Hongkong, and Singapore.

HOKKAIDO RAILWAY, JAPAN.—The Yamamichi-Ozawa section, eight miles long, of the Hokkaido Railway was recently opened to traffic, and it is expected that the whole line between Hakodate and Otaru will be ready for traffic towards the beginning of September.

SEOUL-FUSAN RY.—Another call of 5 *yen* per share on the Seoul-Fusan Railway Company's shares is to be paid by September 15.

NEW RAILWAY, MANCHURIA.—It is reported that the Russians are building a branch railway north of Fengtien. Two thousand workmen are engaged on the road, working day and night, and it is expected that the work will be completed at the end of July.

A message from Antwerp states that a Franco-Belgian syndicate has obtained two important concessions in China, a railway concession in Shensi and a tramway in Tientsin.

The Luhan Railway line from the South has now been carried to within thirty miles of the Yellow River, and it is now possible to travel from Kaifong to Hankow in two days.

CHINESE RAILWAYS.—Shanghai, June 2nd.—It is reported here that Germany has already obtained the right of laying a railway from Putung (opposite Shanghai) to Kangchou.

An extension of the Hokkaido Railway between Sando and Ozawa, a distance of over eight miles, was opened on Thursday.

SINGAPORE-KRANJI RAILWAY

The annual report by Mr. W. Tearle, Manager, reads as follows:—

The Singapore and Kranji Railway was opened for traffic as far as Bukit Timah in January, 1903. The service was started with nine trains each day, but was reduced to eight trains a day at the end of a week.

From April 1st two trains each way ran through to Woodlands and seven to Bukit Timah; from July 16th three trains each way ran through to Woodlands and six to Bukit Timah; from October 1st the service was six trains to Woodlands and three to Bukit Timah only, and this continued to the end of the year. It will be seen from the above that the department has not had the full revenue earning advantage of the railway during the year 1903.

The mileage of the railway up to December 31st, 1903, stood at 15 miles permanent way and one mile for ferry service from Woodlands to Johore Bahru.

The capital account to 31st December, 1903, was $1,808,353.55. The dividend earned on this capital was $41,066.27, equal to 2.27 per cent. The average capital outlay per mile of line open was $113,022.09 as against $91,365 per mile open on the Federated Malay States Railways.

The total revenue from all sources amounted to $135,928.08. With the exception of $1,877.35 for goods traffic, the whole of this amount was earned by coaching. The net earnings per train mile were 68 cents.

The working expenses for the year amounted to $94,861.81. The proportion of working expenses to gross receipts was 69.79 per cent. This is very heavy, but may be explained as under:—

(1) A large staff comparatively was employed for the working of four Stations for most of the year: the same staff has performed the work for eight Stations since.

(2) Heavy incidental expenses were incurred in connection with the opening of the railway, such as transport, furniture, printing, etc., which will not recur.

The railway was expected to earn a large proportion of its revenue from suburban residents. This expectation has not been realized. On April 1st, 1903, there were 19 season ticket holders. On April 1st, 1904, there were 31 season ticket holders. I am afraid that this is owing to the Singapore terminus being so far from the centre of the town. This should be remedied when the tramway runs along River Valley Road to the Post Office.

Pleasure seekers are the chief source of revenue on the Singapore and Kranji Railway, and Sundays are the most profitable days. Two-thirds of the revenue is due to this class of traffic. There is very little goods traffic, but there is every prospect of a large granite traffic from quarries between 9th and 11th mile, and a siding will be put in specially for this purpose at 11th mile. The 1st and 2nd class passenger traffic bears an extraordinary proportion to the 3rd class on this railway as under:—

1 First. 1.05 Second. 8.70 Third.

On the Federated Malay States Railway the proportion is—

1 First. 3.50 Second. 44.12 Third.

The Traffic Department had two engines to carry on the work, but they were in an unsatisfactory condition when taken over. A third engine was used for ballasting up to the end of the year, and a new engine was ordered from home. Coal is used as fuel, but not being of a high quality it makes a lot of black dust, which has caused many complaints. A canvas screen has been put up in front of 1st class carriages, which has considerably reduced the nuisance. It would be worth while to consider the use of oil as fuel, provided a sufficient quantity could always be relied upon at a low price.

Engine mileage for the year 68,272.

The s. s. *Singapore* was taken over on 1st April, 1903, and the s. s. *Johore* on 20th September, 1903. They have worked very satisfactorily, but are not of a good design for both passengers and goods traffic.

The line was taken over before it was quite completed, and trouble has been experienced as usual when this is done. When a considerable number of trains are run, the work done between the trains can only be sufficient for ordinary maintenance. There are several weak places on the line, and it will take some time before the permanent way throughout has become consolidated. There is an improvement in the road, but it is advisable to keep the speed low. The buildings and quarters on the railway are mostly of a temporary nature, and several will have to be renewed next year. The bridges over Killiney Road and Orchard Road are quite safe. The question of their stability has been put to me so many times that I think it should be recorded for information of the public, that they have been examined by several experienced Engineers, who have all pronounced them to be safe.

Communication between stations is carried on by telephone, which is not a satisfactory means for the working of a railway where the native officials' knowledge of English is very imperfect. The telegraph instrument, where every word is spelt out, is much more satisfactory. The telephones have been well maintained by the Telephone Company.

There was only one accident during the year, a brake van going beyond the line at Woodlands and partly going down the bank. No one was injured and the damage was trifling. The person responsible for the accident was dismissed and the siding was lengthened as a precaution.

There has been a considerable amount of sickness on the railway, mostly fever. Woodlands gave a great deal of trouble when we opened to that station, as every one employed there had to go to hospital sooner or later and most of the cases were of a severe nature. I am glad to say that latterly there has been a great improvement in the health of the employees at that station. I have found here as I did in Selangor that good water has a very marked effect on the health of the staff, and Singapore water is now sent to all stations.

There have been 26 prosecutions for minor offences.

I have experienced considerable difficulty in getting men with any railway experience to join this railway for station work, and, with the exception of the men I brought from Selangor, those I have taken on here have been disappointing. I have had to dismiss more men for drunkenness on this railway in one year than I did in eight years on the Selangor railway. The Staff in the general offices have given satisfaction.

The very large capital account of this railway will always militate against a large dividend being earned, and though the earnings are very satisfactory for this year under the adverse circumstances which obtained, I cannot see any prospect that unusual dividends can be earned until there is a heavy through goods traffic between Singapore and the Native States, and then the question of a double line between Singapore and Woodlands will have to be considered, or goods traffic will have to be dealt with at night. Should a large suburban population grow between Singapore and Bukit Panjang, the train service will have to be very much increased, and this again will interfere with the prompt despatch of goods traffic.

SHANGHAI-NANKING RAILWAY LOAN

The following advertisement was published in the Hongkong and Shanghai papers on the 16th July:

For £3,250,000 Sterling, of which £2,250,000 (less £750,000 already applied for, and which will be allotted in full) are now offered for public subscription in London, bearing interest @ 5% per annum and carrying 20% Surplus Profit Sharing Bonds.

Authorized by Imperial Chinese Government Edict.

The Hongkong and Shanghai Banking Corporation, 31, Lombard Street, London, are authorized, as Agents for the British and Chinese Corporation, Ltd., to invite subscriptions for £1,500,000 Sterling Bonds of the above loan.

The price of Subscription is 97½ per cent, payable as follows:—

5 per cent. on application.
20 per cent. on allotment.
20 per cent. on 23rd August, 1904.
15 per cent. on 20th September, 1904.
15 per cent. on 18th October, 1904.
22½ per cent. on 22nd November, 1904.

97½

The Subscription list will be opened in London on Monday, the 18th July, and close on the following day.

Applications will be received at this Office, and wired to London not later than NOON ON TUESDAY, THE 19TH INST., and should be accompanied by a deposit of 5% on amount applied for.

For Hongkong & Shanghai Banking Corporation.

J. R. M. SMITH,
Chief Manager.

Hongkong, 16th July, 1904.

RAILROADS

NEW RAILWAY STATION, SYDNEY. — Mr. Bent, the State Premier, has decided to call for alternative tenders for the erection of the superstructure of the new Central Railway Station. The first tender will be called for the completion of the work in brick with cemented dressing; the second for brick with Pyrmont stone dressings, and the third for brick with Stawell stone dressings.

TRANSAUSTRALIAN RAILWAY.—Despite its unfavorable reception on two occasions when it has been suggested in the House, the Transaustralian railway survey proposal will probably be again placed before members at an early date. The chief opposition to the scheme, which provides £20,000 for the work of survey, will come from Victorian members.

RAILWAY EXTENSIONS, CHINA.—A Peking telegram says that Shang Sueuhwai, who is authorized to grant the construction of branch lines of the Peking-Hankow Railway, provided these lines do not exceed 150 kilometers in length, has recently asked the central authorities for permission to have the scope of the authorization extended so as to suit the need of the times. In addition, Shang has urged the speedy sanctioning of the applications so far forwarded for the construction of certain branch lines. In this connection it is also reported from Peking that the road-bed of the Chengtinghu to Huailai section, 25 miles long, of the Chengtai Railway has been already completed.

THE LU HAN RAILWAY—PEKIN-HANKOW. —The ninth section of the Lu-han Railway, in Honan, has been completed. It is intended to construct a special branch to Yuchow in order to obtain coal to supply the locomotives on the system. The Sub-Prefect of Yuchow, however, objects to this course, on the ground that, if it be taken, the mining interests of the entire region will be in danger of passing into the hands of foreigners. He has, therefore, forwarded a petition, embodying these views, to the higher authorities.—*Eastern Times.*

RAILWAY REPORT, CEYLON.—The report of Mr. H. S. Harington, M. I. C. E., Agent and Chief Engineer of the Kalka-Simla Railway, on the Kelani Valley and Uda-Pussellawa Railways in Ceylon, has been published. Mr. Harington, who specially went over to Ceylon from India to report on these railways, has also reported on other proposed railway extensions on the Island. His impression of the K. V. Railway is that it is "too good." The Uda-Pussellawa Railway is condemned and the construction of similar lines strongly deprecated. Useful recommendations are given of proposed extensions. As regards the Northern Railway, the removal of the rails on it are recommended, also that the line be relaid with heavier rails. —*Englishman.*

THE TURKESTAN RAILWAY.—The war in the Far East, to judge from the items of information which comes to hand from time to time from Turkestan, has in no way diminished Russian military and railway activity in the latter quarter. The Government "retrenchment" scheme, recently applied to the Russian Budget drawn up before the war began, cut down Imperial expenditure for the current year under, among others, the heading of railway construction. The "strategical" line through Turkestan, the necessity of completing which with the *minimum* of delay was so strongly urged by the late Governor of Turkestan and Commander-in Chief of the Turkestan Forces, Lieut. General Ivanoff, in order to secure a double base of operations against Afghanistan, appears to have escaped the operation of the provisions for retrenchment. Work on the Turkestan line is still being pushed forward with vigor; and the latest telegram from Orenburg, dated yesterday, states that the navvying work on the section of the line linking the northern and southern stretches is approaching completion. With a view to laying the entire line with all possible despatch, work was begun almost simultaneously from both ends. The telegram adds that 900 versts of the line have already been successfully laid from the Orenburg end, while 540 have been laid from the Tashkent end. Three hundred versts remain to be laid. The gap is expected to be bridged "towards the autumn." The opening of the line to Tashkent is anticipated for next spring. In a few days' time the railway will be opened to "commercial" traffic between Tashkent and Perovsk. The telegram adds that passenger trains run twice a week from Orenburg to Aktinbinsk. The Orenburg branch of the Samara-Slatoust line from Kinel to Orenburg has already been linked up with the Tashkent line.—London *Times*, June 27.

The Russian Strategic Railway in Central Asia, which will place Tashkent in direct communication with Orenburg, will be finished, it is expected, by this autumn.—*Pioneer*, July 14.

QUEENSLAND RAILWAYS.—Queensland has in all 2,828 miles of completed railways. Three main lines run from Brisbane, Rockhampton, and Townsville into the pastoral districts of the west. The first two are on the eve of being connected by a coastal line. The southernmost goes to Cunnamulla, a distance of 604 miles. The line from Rockhampton extends to Longreach, 424 miles, and the northern line, after a southerly deflection to touch Charters Towers, continues westerly and south-westerly for a distance of 370 miles to Winston. Short independent lines have also been constructed into the interior from the seaports of Mackay and Bowen. Lines still further north start from the towns of Cairus and Cooktown, the former intended to tap the Herberton district, a locality of extraordinary resources, abounding in mineral wealth, with a glorious climate (due to its elevation of 3,000 feet) and a soil capable of growing any description of vegetable product. It was worth an effort to tap such a district, but it proved a very expensive one, 47½ miles of railway costing £1,257,992. The heaviest part of the line has been accomplished, and the margin of a region of great mineral wealth now reached. The line hangs on mountain sides, crosses roaring torrents, and passes through scenery which cannot be surpassed in wild beauty. A private line from Marreeba to Chillagoe, 100 miles long, has been constructed by a private company and opens up a locality containing vast mineral deposits. Besides these railways there are numerous branch lines, and one connecting with the railway system of New South Wales. A traveler can now get into the train at Brisbane, or to take an even longer journey, at either Rockhampton in the North, or Cunnamulla in the West, and proceed by a continuous line of railway to Adelaide, passing through New South Wales and Victoria to South Australia, a distance of 2,262 miles.—*Indian Engineering.*

LOCOMOTIVES FOR THE B.-N. R.—The requirements of the Bengal-Nagpur Railway system are said to demand over a hundred locomotives, but the Home Board could only see their way to sanction a half of that number of engines under the circumstances, it is said, of the uncertainty with regard to the best types to adopt with regard to "standardization" and the Government of India Rules.—*Indian Engineering.*

THE KASHMIR RAILWAY.—A fairly practical scheme has been, it is said, at last elaborated as to the route, etc., and merely awaits official sanction. Private inquiries show that, among the many proposed routes, that which is apparently the most desirable is the one which brings the railway in through the Shupian Road and Pass. One advantage of the route is said to be the coal mines which lie along it and which will be opened up. The project will be a most expensive undertaking, and the question is, would the end justify the means?—*Indian Engineering.*

PEKING HANKOW RY.—On learning that the Belgians have purchased over 2,000 shares of the Yueh Han Railway Syndicate, the gentry of Hunan and Hupeh are urging the Government at Peking to withdraw the concession. They even urge the Government to buy back the shares at a sacrifice. Although Sheng Sun Wy has pointed out the difficulties in the way of getting the concession cancelled, the gentry of Hunan and Hupeh, led by Wong Chi Chun, persist in arguing to the contrary. It is reported that the Government has sent Taotai Chang Hok Ling to Shanghai to see what can be done in the matter.

CHINKIANG-SOOCHOW-SHANGHAI LINE.—The Viceroy of Nanking has recently sent despatches to the different Customs Taotais to the effect that, as the construction of the Chinkiang-Soochow-Shanghai Railway is shortly to be commenced, they should endeavor to obtain the merchants of their districts as subscribers for the shares.

NIPPON RAILWAY CO.—A general meeting of the Nippon Railway Company was held at the Y. M. C. A. Hall, Kanda, on the 8th inst., and the following accounts submitted:—

	Yen
Net profit	2,841,297.654
Brought forward from last account	384,765.459
Total	3,226,063.113
To be distributed as follows:—	
Legal reserve	142,064.890
Fund for the repayment of debentures and interest	21,879.000
Sinking fund for factories and plants	15,091.522
Deficits	262.719
Rewards to officers	108,000.000
Dividends (10 per cent.)	2,376,580.750
Special reserve	200,000.000
Relief fund	20,000.000
Carried Forward	342,184.232

YUMAN RAILWAY.—It is said that as many as 2,000 Italians are engaged on the railway line from Hanoi to Yenbay. The section to Vietry has been open to traffic for some months and that to Thanba was finished a short time ago. The continuation to Yenbay is far enough advanced to permit of engines running almost right up to that point.

THE JOHORE RAILWAY.—The *Daily Mail* of July 13th thus comments upon the signing of the Johore Railway Convention:

Another great step forward has been taken in linking up railway communication with the Far East by the signature on Monday (July 11th) of a convention authorizing the construction of a railway through Johore. This in itself is a matter of great value to the sultanate, but of far higher importance to the British Empire, as it connects the Federated Malay States, of such great commercial promise, with Singapore. There are many notable conditions of the convention, the chief of which are the following:

The Federated Malay States are to construct the railway, which is 120 miles long, at an estimated cost of £1,200,000, and the Johore Government to maintain and work it. The maintenance, however, must be to the satisfaction of the former. The Federated Malay States advance the capital necessary, the conditions being that Johore shall pay 3 per cent; but if the railway earns more than 3 per cent, the Fed-

erated Malay States are to have all the profit up to 5 per cent. After 5 per cent, the balance is to be divided equally, and the Federated Malay States' portion is to be allocated to the reduction of the capital. Johore pledges its revenue to pay the 3 per cent.

The railway is to be constructed to the satisfaction of Johore, and the alignment and designs are to be to its satisfaction.

The concern will be managed by a board of control of five members, three nominated by the Federated Malay States and two by Johore. The Federated Malay States are to have running powers over the line for through traffic, there being a division of receipts according to mileage.

Finally, there is a comprehensive arbitration clause, and—what is most important to the entire public, as the Crown Agents have managed to secure the right to purchase all material—all expenditure is to be subject to audit by Johore.

There is no doubt that the Sultan of Johore has exhibited great moderation and goodwill in the whole matter.

THE YUNNAN RAILWAY.—Correspondence of the *N. C. D. News* from Yunnanfu states that a thousand Italian navvies are actually working upon it somewhere or other; not to speak of Frenchmen, Greeks, and Chinese. There are engineers told off to the different sections, and embankments made all along the line. Even in Yunnanfu, embankments are being made, a station planned out, and quite a number of French engineers, all living together in a big kungkuan, as busy as the day is long. Having always heard of this railway as a sort of impossibility, it is quite startling to find it an actual reality. Trains, we are told, are running as far as Yenbai, and the only matter about which people differ is the date of their arrival here.

THE CENTRAL ASIAN RAILWAY.—The Peking correspondent of the Osaka *Mainichi* reports that a traveler just arrived in Peking, after having been in Central Asia, informed him that the Russian Central Asian Railway has reached already Andijan in the north-east of Felgana in the Pamirs, via Merv from Crasnovodosk in Persia. From Andijan the railway will be extended to the Yangtsze river via Hsianfu in Shensi, from Suchow and Lanchow in Kansuh, China. The construction of this branch line will be hurried on. Andijan in Turkestan will be remembered as a center of the Great Russian scheme in Central Asia, the same as Port Arthur in Manchuria and Kushk of Persia in the Far East. The railway was a military line, but now it is open to everybody. The Russian influence in the plateau and plain of Tienshan Peilu and Tienshan Nanlu or the Province of Hsinchang of China (including Ili) has now been established as impregnable. The Russians are now keeping the Mohamedans the same as Lhamas in Mongolia. The Russian merchants are entering and establishing themselves in these parts of Chinese territories. At Kashgaria, there is a branch office of the Russo-Chinese Bank, and at Ningsha a Russian Political Agent resides and acts as Consul. In these districts Russian gold coins are used as currency.

BURMA RAILWAYS.—Railways are progressing in Lower Burma. The proposed Pegu-Martaban railway has now been settled and the B. S. Railway Company has just issued a map showing the alignment of the intended railway. There are to be five stations erected between Thaton and Martaban. These are at Toungzoon, Yinnyain, Zingyike, Paung, and Gangaw. The company's Chief Engineer was there recently and has since left for Martaban to select a station site. Martaban is just across the Salween river estuary, there about two miles wide, from Moulmein, which will be in touch with the railway by steam-ferry. This will bring the whole province of Tenassarim into close relations with Pegu and its chief town, Rangoon.

LOCOMOTIVE CONSTRUCTION IN JAPAN.—Although a few locomotives have been constructed in Japan, the Japanese have not made the same progress in this department of industry as in some others, remarks *Engineering*. This, of course, is explained by the specialized nature of the work required in a successful locomotive establishment. First of all, great experience is required on the part of those in charge, and men with this experience are not easily tempted to a foreign land like Japan. Then most of the machines and appliances require to be specially designed for the work, and the establishment confined to that alone, as the day is past when locomotives can be made, at a reasonable price, in a general engineering establishment. Then, lastly, every part of the work must be standardized, and this can only be done at very considerable preliminary expense, which comes rather heavy on a new establishment resting entirely on its own merits. Still the matter is going to be tried. The Anglo-Japanese Locomotive and Engineering Company (Ltd.) proposes to erect large works on a site which it has secured near Yokohama, Kanagawa-Ken, Japan, on a lease for 1,000 years, free of all charges except an Imperial tax of 2½ per cent of its assessed value. It has its own wharf, it is adjoining the Yokohama-Tokio line of the Imperial Railway, and it is within 400 yards of the railway station. It is stated that a more suitable site for the works it would be difficult to imagine, as it has water and railway accommodation ample for its purposes, to whatever extent it may develop. Tenders have been received for the erection of the buildings, and all are to be completed within four months of signing the contract, and over 50 per cent of the capital has been promised. As soon as the capital has been paid in, the company will proceed with the construction and equipment of the works, which will take about seven months to complete, and be ready to commence the manufacture of locomotives and other machinery.

HSIAO-CHING HO RAILWAY.—In connection with the construction of the proposed Hsiao-Ching Ho branch line, the Governor of Shantung has concluded an agreement with the German railway company, which is represented by Mr. Hildebrand, chief engineer of the Chiao-Chou-Chinan line. The line will commence from the east suburb of Chi-nau and run to the south bank of the Hsiao-Ching, which is estimated to be about 2,500 meters or one and one-third mile in length. As this line was not contained in the Chiao-Chi agreement, the Governor of Shantung obtained permission from the Government for the Bureau of Commercial Affairs to construct it; but, owing to the short distance, the Bureau asks the company to construct the line on its behalf and it shall be regarded as the property of Chinese merchants after the completion without any interference from the Chiao-Chi railway company. For the purchase of the necessary lands and material the Bureau will lend Tls. 30,000 to the company, this loan to be refunded after completion of the branch line. The company will pay Tls. 800 per annum as rent for the lease of the line; but the Bureau shall, according to the agreement, have the privilege of communicating with the lessee, if any improvements are necessary on the line; and the Bureau will also have the privilege of purchasing the line at a reasonable price, deducting the sum of Tls. 30,000 before mentioned. The establishment of post, telegraph, and telephone offices will be reserved for Chinese officials and merchants, and the company will not be allowed to open such offices. The agreement will be ratified when it has been approved by the Chinese Government and the company in Berlin.—*P. & T. Times.*

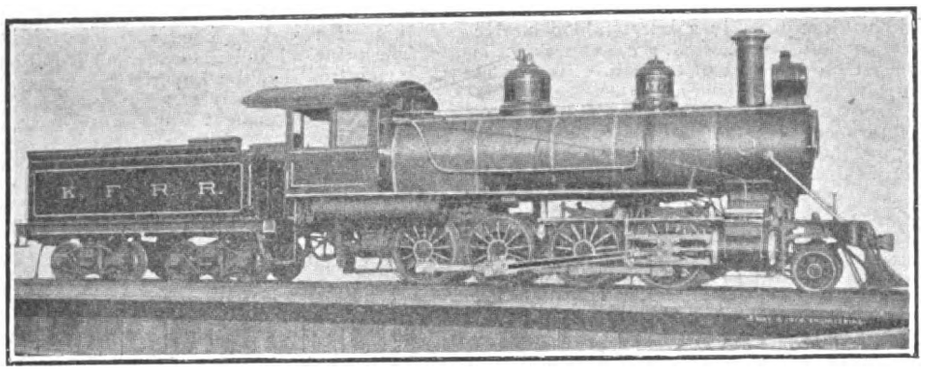
PEKING-KALGAN RAILWAY.—Chinese capitalists have applied for a concession to build a railway between Peking and Kalgan, but both the Central Bureau of Railways and Mining Affairs as well as the Board of Commerce rejected the application. Then the Peking Government tried to build the line by itself, and sent a certain high official and a foreign engineer to make a survey and an estimate; but, there being no prospect of getting profit from the line, the matter has now been dropped.—*Sin Wan Pao.*

SHANGHAI-NANKIN RAILWAY.—The prospectus of the Imperial Chinese Railways, Shanghai-Nankin Line, has been issued. The issue consists of £2,250,000 Five per cent. Sterling Bonds, part of a loan for £3,250,000 sterling. The principal and interest are unconditionally guaranteed by the Imperial Government of China, and specially secured by a first charge upon the permanent way, rolling stock, and entire property, with the freight and earnings of the railway line to be constructed from Shanghai to Nankin, as well as of the existing railway line between Woosung and Shanghai. The bonds are exempt from all Chinese taxes and imposts, and principal and interest are payable in London in sterling.

THE BAGDAD RAILWAY.—Germany is evidently prepared to pay heavily for gaining a footing in Asia Minor. Failing in her attempt to induce Great Britain to share a part of the burden of the Bagdad Railway, she is slowly realizing that project. The first report of the Bagdad Railway Company, covering the year 1903, has been published, and though it is very early to judge, it is certain that Germany has taken on her shoulders a very difficult and a commercially unprofitable task. The Anatolian Railway, which may be regarded as the first instalment of the Bagdad enterprise, has not had a profitable experience so far. Last year the gross receipts showed no less a decrease than £113,000, or upwards of 25 per cent. A bad harvest and the irritating Turkish passport system made for this sharp decline. Anyhow it indicates sufficiently the difficulty and uncertainty of railway management in the territories of Turkish Asia. The Turkish Government guarantee the Anatolian Railway to the extent of £204,000, and this enabled the company to pay a dividend. In spite of the talk of high finance, the capital of the Bagdad Railway is only £600,000. A German company has the contract to build the first section from Konia, the terminus of the Anatolian Railway, to Eregli. However, this can only be described as a very small instalment, as the cost of the whole railway is estimated at something reaching £20,000,000. So far the shares are divided between German, French, Austrian, and Turkish banks, and no British capital is invested in it at all. The Turkish Government, in consideration of its kilometric guarantee of the line, has received a four per cent loan of £2,360,000, and has set aside a certain number of tithes to the service of this debt.

The expenditure on construction is being defrayed out of the share capital and the interest of the Turkish loan. The balance sheet at the end of last year showed liabilities amounting to £198,000, and assets consisting of £265,000 in hand, and £244,000 representing the value of the line so far constructed. It is difficult at this stage to forecast the success of the Bagdad Railway. The German investors are moving very cautiously, and only a very small proportion of the necessary capital has yet been subscribed. Although the country through which the line is to pass is only sparsely populated, and under present conditions does not promise a commercial success, there is the hope that the valley of the Euphrates will become another Egypt for prosperity and fruitfulness. Germany is making a bid for commercial supremacy in Asia Minor, and the Bagdad Railway is a means to that end. Russia was very disinclined to allow any interference near Persia, but Germany is now in a position to exact concessions or at least neutrality from Russia. There is at the present moment a movement in the direction of reviving British trade in Persia, and there may be a clashing of British and German interests. It will be remembered that Britain very coldly received German overtures towards sharing in the opening up of Asia Minor, and that the Bagdad Railway scheme was severely ignored. It may be possible that the new Anglo-German agreement will change the attitude of the British Government towards Germany's ambitions in Asia Minor. In any case it should make dangerous friction very unlikely.—*Englishman.*

THE GERMAN SHANTUNG RAILWAY.—At the general meeting of the Shantung Railway Company, held at Berlin on June 1st, it was



BALDWIN 2-8-0 LOCOMOTIVE FOR JAPAN. (FROM "*Locomotive Engineer.*")

announced that a cablegram had been received to say that the whole of the line between Tsingtau, Weih-sien, and Tsinan-fu was thrown open to traffic last Tuesday. In the report for 1903, issued by the management, great stress is laid upon the further development of the railway in the following terms:—"Of the greatest importance for the future development of the traffic of the Shantung Railway is on the one hand its connection with sea trade, owing to the German settlement at Tsingtau having entered the ranks of the ports of Eastern Asia, and, on the other hand, its connection with the railway lines in the interior of China."

The report refers to the projected railway which is to be built by the Chinese Government from Tientsin to Tsinan-fu, and thence to Chinkiang, near the mouth of the Yangtse-kiang, with a terminus at Shanghai. At Tientsin this projected line will join the Northern China Railway; this junction will bring about a through line of railway between Peking and Tsingtau, and such a line will be of immense importance during the season in which the navigation of the Gulf of Pechili is closed by ice. "Moreover, at Tientsin the line will be brought into direct communication with the Manchurian Railway by way of Shanhaikwan and Newchwang, and thereby the Siberian Railway will be reached, so that then travelers will be able to go by rail from Berlin to Tsingtau." The receipts of the Shantung Railway in 1903 amounted to 442,239 dollars, and the total expenditure to 289,253 dollars.

BALDWIN 2-8-0 FOR KOREA

Our illustration shows a good example of a Baldwin 2-8-0 simple engine, built for the Japanese Government. It will run on the Seoul-Fusan Railway, a standard gauge road which connects the principal cities of Korea.

The cylinders are 20x26 ins., and the driving wheels are 54 ins. in diameter. The whole engine weighs in working order, 137,394 lbs., and with 180 lbs. steam pressure, the calculated tractive effort is about 29,500 lbs., and the ratio of tractive effort to adhesive weight is as 1 is to 4.17, the weight on the drivers being 123,194 lbs.

The valve gear is indirect, and the main valve used is an ordinary balanced D-slide. The pistons drive on the third pair of driving wheels and the eccentrics are on the axle of this pair. The transmission rod is, therefore, carried back from the link to the lower end of the rocker, which latter comes out between the main and the second driver. The main and the second drivers are not flanged. The spring system is such that the pony truck and the leading drivers are equalized, and the three rear drivers are equalized together. The first two drivers have overhung springs and the last two have springs placed between top and bottom frame bars and also between wheels and back of rear drivers.

The boiler is a straight top one with semi-wide fire-box. The crown sheet and roof sheet are level and there is a steam space of about 20 ins. between them. The boiler is 60 ins. in diameter and the tubes, which are 240 in number, are 13 ft. 10 ins. long. The heating surface is 1,875 sq. ft. in all, of which the tubes contribute 1,727.8 sq. ft. and the fire-box 147.2 sq. ft.

The tender is of the usual type, the tank having a capacity of 4,000 U. S. gallons. The total weight of engine and tender is about 217,000 lbs. A few of the principal dimensions are appended for reference:

Boiler—Dia., 60 ins.; thickness of sheets, 5/8 in.; working pressure, 180 lbs.; staying, radial.

Fire-box—Length, 108 3/16 ins.. width, 41 ins.; depth, front, 60¾ ins.; back, 58¾ ins.; thickness of sheets, sides, 5/16 in.; back, 5/16 in.; crown, 3/8 in.; tube, ½ in.; water space, front, 4 ins.; sides, 4 ins.; back, 3½ ins.

Driving wheels—Journals, main, 8x9 ins.; others, 8x9 ins.

Engine truck wheels (front), dia. 30 ins.; journals, 5x9 ins.

Wheel base Driving, 15 ft. 0 ins.; total engine, 23 ft. 0 ins.; total engine and tender, 50 ft. 7 ins.

Weight—On driving wheels, 123,194 lbs.; on truck, from 14,200 lbs.; total engine, 137,394 lbs.; total, engine and tender, about 217,000 lbs.

THE HONGKONG WHARF AND GODOWN COMPANY, LTD.

An extraordinary general meeting of the Hongkong Wharf and Godown Company, Limited, was recently held at Messrs. Jardine, Matheson & Company's offices in Hongkong.

The Secretary read the notice convening the meeting.

The Chairman—Gentlemen, this meeting has been called for the purpose of obtaining your consent to an increase of capital, a step which has become necessary in view of our debenture issue falling due for re-payment on 30th September, and to provide funds for further extensions. The financial position of the Company is broadly as follows:—Our real estate property, comprising land and buildings costing $2,790,367, was, according to a valuation made by the Company's architects two years ago, worth $4,135,238, and probably if revalued to-day would reach a considerably higher figure. We also possess in wharves, railways, launches, lighters, and machinery, additional assets to the extent of quite $600,000—making a total of $4,735,238, and I have little doubt that had we to purchase these properties to-day we should find the cost would not be less than $5,000,000, which figure, I think, may be taken to represent their minimum value. Our indebtedness is a little under $1,300,000, so that in round figures the net assets are $3,700,000. Our proposal is to issue new capital at $30 premium or $80 per share, to the extent of $800,000, and we purpose making this issue on 31st December next. You may possibly ask how it is the Board have decided upon this re-arrangement of the Company's finances rather than issue new debentures. Our reasons are that we could not renew the debentures at 5½ per cent, and possibly not even at 6 per cent, and as the difference between 10 per cent on $500,000 and 6 per cent on $800,000 is only $2,000, we consider the saving insufficient to justify locking up the property by a mortgage deed, especially so in view of the important changes that must take place at Kowloon should the railway, as seems hopeful, become an accomplished fact.

I beg to propose the following resolutions:—

1. That the capital of the Company be increased from $1,500,000 to $2,000,000 by the creation of 10,000 new shares of $50 each.

2. That such new shares be issued at a premium of $30 per share and be offered to those persons who are registered as shareholders of the Company on 1st October, 1904, in the proportion of one new share for every complete three shares held by them on 1st October, 1904.

3. That the amount due for the new shares be called up on 31st December, 1904.

The motions were carried unanimously.

NEW SPECIE BANK BUILDING, YOKOHAMA.—An excellently well got up booklet, giving a general description and history of the magnificent new building just finished at Yokohama, has been issued by the Yokohama Specie Bank, Ltd. It contains several good photographs of the building from the outside and of rooms inside.

The rooms in the bank are large and airy, while the convenience of customers has been thoroughly studied. The architects of the building are Messrs. Oto Endo and Sakuzo Yorita. Work on the foundation of the building was commenced on March 25th, 1899, and on its completion the construction of the building was begun on December 13th of the same year, the whole of the work being finished in July, 1904.

The building is the result of an attempt to adapt the best features of modern bank buildings of the most advanced type to the requirements of the customs and conditions peculiar to Japan.

The building is located at No. 83 Gochome, Minami Naka-dori, Yokohama. The ground area of building is 23,217 sq. feet.

The present capital of the bank is 34,000,000 yen, of which 18.000,000 yen have been paid up. The total number of shares is 240,000, of which 60,400 are owned by the Imperial Household. The reserve fund stands at 9,320,000 yen.

THE INDUSTRIAL BANK OF JAPAN

The Industrial Bank of Japan held a general meeting of its shareholders on Saturday. The following balance sheet for the last half-year was presented and approved:—

	Yen.
Net profit	96,493
Reserve against losses....	8,850
Dividend equalization reserve.	2.215
Dividend	62,500
Reward to officers	7,000
Bonus to shareholders	12,500
Carried forward....	3,428

A dividend for the last half-yearly term at the rate of 9 per cent per annum was declared.

Next, Mr. Soyeda stated that the bank's investments at the end of the period under review amounted to Y10,064,733, including Y4,106.229 and provincial bonds Y3,409,764 in debentures of private companies and Y2,548,740 in various enterprises. The gross profit during the period, added to the sum brought forward from the previous account, amounted to Y435,898, of which Y96,493 represented net profit.

Mr. Soyeda proceeded to say that on January 15th an agreement was concluded between the bank and the Chinese authorities and the Yedamitsu Iron Foundry, by which agreement the bank promised to advance three million yen to the Taya Mining Bureau, China, in three instalments, and this sum was to be repaid, not by that Bureau, but by the Yedamitsu Iron Foundry, which was bound to pay to the bank from time to time the prices of the supplies of iron obtained from the Chinese Bureau in question. The first of the instalments for the stipulated loan was paid on the date of the signing of the agreement, the second on April 15th, and the third on July 15th. To speak more in detail, the transactions consisted in the bank taking up Y3,000,000 worth of the said Bureau's debentures, bearing interest at the rate of 6 per cent per annum and redeemable within thirty years. All the property of the mine, including the railway for the conveyance of ores, rolling stock and other adjuncts, was offered as security.

With regard to the conclusion of the above agreement, Mr. Inouye, one of the bank's directors, was despatched to the mine, which he personally inspected. As the result of the investigations, negotiations were carried out between Mr. Inouye and Shang Suen-hwai, superintendent of the Hupeh Ironworks, to which the Toya Mining Bureau belongs.

THE MINERAL RESOURCES OF NORTH CHINA

(Continued from page 3.)

rience, unless they could gain something themselves. Chili is open to foreigners for mining purposes on the condition that the concession be half foreign and half Chinese. The principal terms on which concessions are granted stipulate that the application must first be placed before the Governor General at Jehol, according to the Jehol mining rules and regulations, which are attached hereto, and the Chinese Government shall receive six per cent of the amount of gold yielded. A local mining board has been established at Jehol, where all the mining business of that district is transacted.

Two concessions have been granted on the above basis. An American made an application conjointly with a Chinese subject for a concession named the Chang-tze-kou, in the Lan-ping-hsien district, North Chili. This was granted by the Way-wu-pu, in July, 1903, and the proclamation was issued to the people by the Governor General, in August, 1903. About the same time another concession, also in the Lang-ping-hsien district, was granted to a German and Chinese subjects conjointly. Both concessions are governed according to the Jehol mining rules and regulations.

It is evident to those in this country that the long delayed interest in its mineral resources has set in, and it is with considerable confidence that one predicts an enormous boom in the industry, as soon as some of the gold-bearing districts are systematically exploited and regular returns forthcoming.

So much indiscriminate digging has been done, that in many places deep sinking will have to be resorted to.

The present condition of the mining industry outside the Great Wall offers unusual facilities for exploration and reduction. Progress in the past has been slow, with the result that the gold fields have achieved no prominence.

The earliest discoveries of alluvia were made in the drifts that fill up the valleys, and cover the plains at the foot of the mountains, and a large proportion of gold is still derived from this source. In places, the wash or gravel varies from two to four feet in thickness, the average contents yielding from twenty to thirty cents per cubic yard. Most of this alluvial has been worked for centuries, and it would not be profitable to work any old deposits (that have been already exploited by the natives) with foreign methods.

Considering the condition of the roads and rivers, transport in North Chili is exceedingly cheap. Native carts, capable of carrying over one ton, can be had at the rate of $4.00 per diem. They travel on an average of twenty-five miles per day, and it is only in the rainy season that any delays occur. For river navigation flat-bottomed boats are readily secured, which carry over two tons and up to five tons, when the rivers are in flood. The cost per boat capable of carrying two tons is $4.00 per diem. All machinery would have to be packed, and boilers, etc., sent in parts. Boats going up stream make about twelve miles per day.

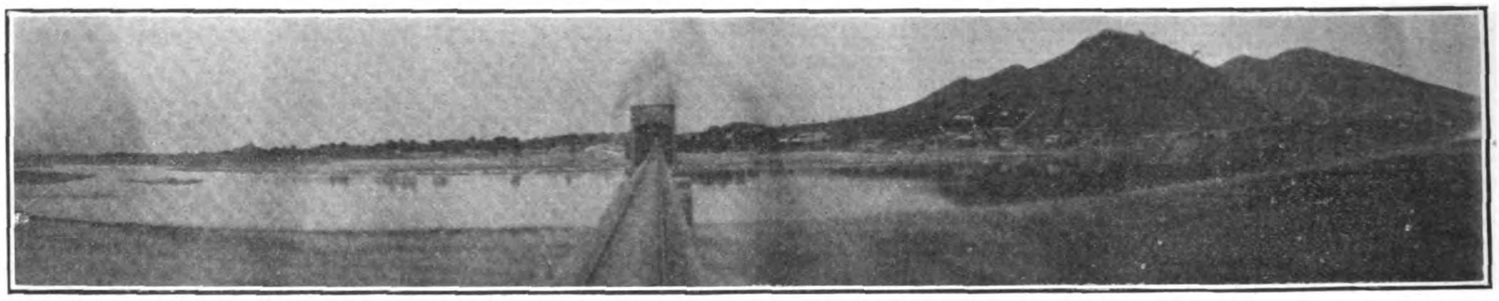
present there are no markets excepting the towns and villages. Equipment and transport would exceed in cost the best coal to be obtained at the nearest port. However, this native coal will be very useful for the operation of gold mines. A small coal mine, sufficient for all purposes, can be opened and worked cheaply by native methods, and the cost landed at the mine over the most difficult routes should not be more than twelve dollars per ton.

The country outside the Great Wall is mountainous and barren, excepting the growth of a small scrub. It is therefore an easy matter for the prospector to locate the outcropping lodes and veins. When a concession is granted, and the company intend sinking shafts, or build houses, etc., the land in question must first be bought, and to save disputes a price is fixed by the local authorities.

Water is abundant, and even in the depth of winter a supply can be had sufficient for all purposes.

Timber is scarce. The Wei-chang has a small belt, but in a few years this will be finished.

Mining costs in Chili may be roughly estimated thus: With a stoping width not less than three feet, and where there is not an excessive amount of dead work, the total cost of mining will be from three to four dollars per ton. This will cover all ordinary costs, but would be exclusive of new crushing machinery, boilers, winding engines, etc.



CHINESE IMPERIAL RAILWAYS: LAN CHOU BRIDGE.

The native methods of working the reefs and lodes are primitive. Small shafts are sunk to a depth of 20 to 50 ft., and overhand and underhand stopings are then commenced. The ore is carried to the surface by baskets on the backs of coolies. These shafts are nearly always sunk within twenty feet of each other, and little or no timber is used. Sometimes a three inch diameter prop will be found here and there in the workings, where it is actually impossible to get up or down the stopes without some support; or a small pillar is left to support the ground. Most of the old workings, however, have caved in. This does not refer to mines that are under foreign management.

The ore, after carried to the surface, is picked and carried to a stone mill, or arrastra, for pulverization. The mill consists of a circular granite slab, ten feet in circumference and fifteen inches thick. In the center is an upright pole, to which is attached a roller of granite in such a manner that it revolves on the granite slab, and trams are attached to the roller in such a way that a mule can be harnessed to it for giving the driving power. The crushing is similar to grinding corn. After crushing to a certain fineness—no screens being used—the natives then wash the crushed ore on a small wooden apron or table, usually five feet long by two feet wide. About one hundredweight of ore is washed daily, when in full working order. No quicksilver or other chemicals are used to get a closer extraction—in fact, the use or knowledge of the latter is unknown here.

Prospecting will be comparatively easy in this gold field, as the outcrops in most cases can be traced to a considerable distance.

Chinese merchants who have obtained permits to open mines in North Chili, through the Governor General at Jehol, and who lack the necessary capital to develop same, usually let the mine or a part thereof out on tribute. The tributers have to pay all working expenses, and the gold yielded must be sold at a fixed price to the concessionaires. The latter pay such a small price for the gold at Jehol and other places, that the tributers sell only a small part of the yield to the owners, and take the remainder to a market where they can obtain a higher price.

At *Tientsin-Fu*, the Viceroy of Chili has his headquarters, and governs the southern portion of Chili. *Cheng-te-fu* (Jehol) is the official residence of the Governor General, who governs the northern and eastern parts of Chili.

Coolie labor in North Chili is plentiful. The pay of an ordinary Chinese coolie varies from twenty to thirty cents per day, and a miner or carpenter from thirty to forty cents. No food or lodging is provided for any of the Oriental workmen. Under the supervision of foreign mechanical engineers, Chinese operate most of the hoisting and pumping engines in Chili, and no serious accidents have yet occurred. After overcoming the difficulties usually placed in the way of a foreigner introducing something new, the Chinese are as capable of receiving instruction as the European would be who had been brought up without any knowledge of our methods. A northern Chinaman is very conservative.

Coal is abundant in North Chili, but at

THE JEHOL (CHENG-TE-FU) MINING RULES AND REGULATIONS

(1) *Office for sending petition in.* It has been memorialized to the Throne, by Jehol, that the Chu-chi-chu office is established, and an office for mining affairs is included. Merchants applying to open mines must have their agreement and amount of capital examined. This should always be sent into the above mentioned office (the Chu-chi-chu), and no applicant is allowed to visit the Deputy in his private house, or to try and arrange privately with any of the official staff, so as to put a stop to all deceptions and bribery. (Sending reports or remitting revenue shall be in a similar manner.)

(2) *The Wai-wu-pu has been notified.* Petitions regarding to mining applications sent to the Wai-wu-pu must be clearly inspected by the Governor General of Jehol, and if found that everything is correct, responding to the Jehol mining regulations, the General will accordingly dispatch same to the Wai-wu-pu for approval; after being approved by the Wai-wu-pu, the pass or permit may be given to work the concession. Any merchant or merchants making application through the Wai-wu-pu, the said Wai-wu-pu must dispatch cases of such kind to the Governor General at Jehol, for approval. After an approved dispatch has been returned to the Wai-wu-pu, then the permit may be recognized as a proper proof of working the mine. No matter whether the people of Mongolia or others object, they have to obey same.

(3) *To announce capitals. Capital for opening a mine.* A clear statement must be made

in the application to the Governor as to whether the capital is foreign or Chinese, and no false statements must be made.

(4) *Showing foreign agreement.* If a rough agreement is made, and capital obtained of which is under a foreign loan, or foreign share, and the application is sent through the General, or through the Wai-wu-pu, if the terms are not agreeable to the mining regulations and impossible for the Imperial Government to admit same, they cannot hold the rough agreement as a certificate.

(5) *To announce the four directions of the boundaries allowed.* Formerly applicants used to give false names of places, in order to speculate with other mines. For example, take the Ping Chuan Coy—they have already had their original concession, and applied for the Pa-Kou mines, etc.; also the Chih-Feng Coy have had their original concession, and applied for the Ha-Ta mines, etc. Thus disputes are easily raised up one against another, and cause an unlimited case..... Hereafter, before a mine is approved by the Governor General and allowed to commence work, the situation of the four directions of the concession and the distance from the townsite of the local magistrate must be clearly stated in the petition, and a plan showing same must accompany petition, in order to enable the sending of a Deputy to the place for inspection, so as to prevent disputes.

(6) *To send deputy for examination.* Any person or persons applying to open any mines, no matter whether he or they have applied through the Wai-wu-pu, and same been dispatched to the Governor General, or applying direct to the General, must always notify the mining affairs office (Chu-chi-chu, at Jehol) to order the local magistrate to make a clear inspection of the matter, whether it interferes with the concession of other property or not. If the property is situated far from the magistrate, then a Deputy may be sent for inspection. All will be settled when a report is sent in by the Deputy. Should any false reports be sent in, the Deputy will be solely to blame. The traveling expenses for the Deputy are to be paid by the mining office, and he is not allowed to take any money or presents from the applicants, and should it be discovered that this regulation has been disobeyed, the culprit concerned will be severely dealt with.

(7) *Official trial of opening the mining properties of Jehol.* At the present time, the Government being so short of funds, and to be solely dependent on merchants is not sufficient to increase the revenue current, . . hereafter, should any rich mining lodes be found, and are not being worked by any merchant or company, or which had been worked and closed by their own accord, a manager may be appointed by the Mining Board of Jehol, to open these mines by native methods, the amount of which will be paid according to the proposed development. Notification must first be sent to the Board of Revenue, Peking, to consider the matter. All the profits will be paid to the Imperial Government, if any, and said mines may be enlarged after proposed development has been completed. After one year's time the said manager will be recommended to the Throne, and to be paid with a fair salary. Should any practice of bribery or extortion be found, the person or persons concerned will be at once denounced to the Throne.

(8) *To point out the boundaries of the ground applied for by merchants for mining purposes, marks will be placed at the different points of the limits of ground applied for.* Hereafter, should any person apply to open a mine, he shall point out and name the place. A large mine is twenty li, within the limit above mentioned, and a small mine is ten li, within the limit; and not to point out several places at the same time, beyond the limit. If the place applied for is opened, and the revenue increased, application may be made to open other places, after inspections are made, and, no objections raised, permission may be granted for opening another mine.

(9) *Marking clear the boundary limit.* When the limit of the boundary is arranged, the mining ground must be clearly divided. If two mines are connected together, disputes cannot be avoided. Hereafter, a new mine is not allowed to work into the limit of the old mines boundary, so as to put a stop to such disputes.

(10) *To distinguish between the old and new mines.* Those of the existing old mines that have been stopped, owing to low grade ores, and others that have been sealed by the deficiency of funds, therefore, the mines are returned to the public, and not to be held as their lawful property. If fresh application is made by other people, it does not concern the old applicant. However, the fresh petitioner must give a clear statement, in order to enable the officials to find out the old applicant, as to whether there is any unpeaceful circumstances or not, so as to prevent complaints. Machinery and buildings that are bought and constructed by any former mining company, if found in good condition, and can be put to further use, also which have not been confiscated by the officials to repay any short payments accruing to the public revenue, a reasonable price will be made for the said machinery and buildings for the successor to buy.

(11) *To prevent private transfers between the officials and merchants.* When a concession is granted and a mine opened, and the applicants have exhausted all their capital, or owing to the shaft being too old or the lodes are barren, applicants should send in their petition at once, and ask to seal up the mine. They are not allowed to transfer the mines to any other persons by a private system. Should the owners wish to put additional shares or transfer to other persons, cases of such kind must be announced beforehand, and without any extortion or bribery; also to act according to these presents, to take the same case as if applying for a fresh concession. The usual permit will be given, after notifying the Wai-wu-pu; also the applicants will have to pay another amount of pledge money, $1000. Thus will the successive applicant be allowed to open the mine. Should it be discovered that this regulation has been disobeyed, the culprits concerned will be severely dealt with.

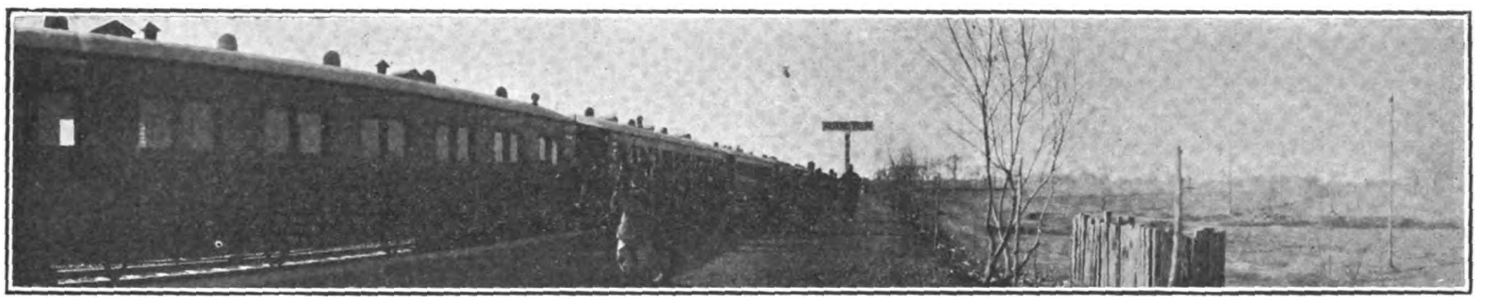
(12) *To pay for Mongolian ground or mountain shares.* The four eastern sections of Jehol are all properties of the Mongolian princes, etc. They used to collect the revenue and taxes of the land. An applicant, besides paying the Imperial Government revenue, will also pay the Mongolian Tartar a certain amount, to be called mountain shares. At the present time it is decided, should any new mines be opened, that they shall, according to these presents, consult with the Mongolian princes for the amount in shares, and report the same to the Mining Board at Jehol, for record. The latter will receive a certain amount as revenue, so as to pay the deficiency of tax.

(13) *Mines to be opened by the officials and their staffs, who are under the Governor General at Jehol.* There are so many cases of extortion and bribery going on while a mine is being worked by officials and their staff, that all such practices must be put a stop to. If any of the officials or their staff wish to open a mine, notification must at once be forwarded to the Wai-wu-pu, so that the official in question can exchange his position to other Provinces, and his staff must resign their positions to others. Then, if no other objections are raised, permission may be granted to open the mine, and, as to accepting bribe shares, this should be strictly stopped by all officials.

(14) *Rules for collecting the revenue from mines.* When a mine is taken up on trial, a certain limit of time will be given to prove same before increasing the tax. Half a year at most or three months at least will be granted on gold and silver mines which have smelted any gold or silver within this limit of time. The tax on all mines will be paid into the Mining Board office at Jehol, as revenue. Sometimes mining companies do not report fully and truly the yield of gold and silver received by crushing or other process for a long period, but pretend that they have stopped work; and, whenever the General urges the company to apply and seal up the mine, the owners or company thereof state that they are just opening up. So much of this business has been practiced, that hereafter, when a mine is granted to merchants to open, from the date of issue of the proclamation the revenue must be increased, by returns from the mine, by the end of the first half year. If over six months and the revenue has not been increased, it is proof that the lodes are not profitable, and the Government will command the mining company to apply for the mine to be sealed up. If the stone is hard and the lode is at a depth, and no false reports made thereof, or evading the tax, the limit may be extended another six months. The government tax has to be paid as soon as any company starts smelting gold or silver.

(15) *Pledge money.* According to the old rules and regulations, the pledge money for gold and silver mines was three hundred taels for each mine, and fifty taels pledge money for a coal mine. Hereafter, according to these presents, it is necessary to increase the tax. Where Chinese and foreigners work a large mine conjointly, for each large mine opened the applicants must pay *one thousand taels*, as pledge money. Any person opening a small mine with native methods must pay *three hundred taels* as pledge money. After the permit has been given, and a company has worked the mine for six months and paid in no revenue, the merchant can make application for the mine to be closed, and half of the

(Continued on page 9.)



CHINESE IMPERIAL RAILWAYS: HWANG TSUN STATION.

GUIDE
MAP
OF THE
CHIHLI
PROVINCE
Compiled by
A J G Denney
Scale in Miles
Routes
Roads
Railways
Boundaries of Provinces
Proposed Railways
Principal Towns
M O N G O L I A
M A N C H U R I A
PEKIN
TIEN TSIN FU
PAO TING FU
G of Liao tung
GULF of CHIH-LI
TSI-NAN-FU
TSING CHOU FU
TENG CHOU
CHANG-TE-FU
TAI-AN-FU
S H A N T U N G
Yellow River

CANTON-HANKOW RAILWAY

The Yueh-Han Railway or Canton-Hankow line, according to the *Universal Gazette*, will probably revert to American hands again. That paper states that a wealthy American is anxious to construct this railway and has been in communication with certain Hunan gentry and notables on the subject. The latter have therefore petitioned the Waiwupu, asking that Wu Ting Fang be appointed to take up the matter and revoke all former contracts concerning the railway. The Hunanese gentry also say that the wealthy American in question is well known to both President Roosevelt and his cabinet as well as to Wu Ting Fang himself. The *China Review* gives a different story, and says that "certain persons representing Russian interests have purchased the Canton-Hankow railway concession, the work on which is now in course of construction."

SHANGHAI-WOOSUNG RAILWAY

With the simplest formality possible, the control of the Shanghai-Woosung Railway was on October 9th taken over from the Chinese Imperial Railway Administration and vested in the Board of Commissioners of the Shanghai-Nanking Railway. A special train left Shanghai at 9.10 a.m. for Woosung, carrying the following members of the Board: Taotais Chu Pao-fay and Shên Tun-ho, Mr. D. Landale (of Messrs. Jardine, Matheson & Co.), Mr. J. D. Smart (of the Hongkong and Shanghai Bank), and Mr. A. H. Collinson (Engineer-in-Chief). At Woosung these gentlemen were met by Mr. Chun Oi-ting, the manager under the old administration, and by him the formal delivery of the railway was made. We learn that with the exception of Mr. Chun Oi-ting and one other high Chinese official, who have both received fresh appointments, the Commissioners have taken over the whole staff of the line, and for the present at all events the change of management will be more real than apparent. In this connection it may be mentioned that it is hoped that H. E. Sheng Kung-pao will be sufficiently recovered from his indisposition to cut the first sod of the new railway very shortly.—*N. C. Daily News.*

PEKIN-HANKOW RAILWAY, CHENGCHOU.—Chêngchou is more like a place on the boom than any place I have seen in China. We were prepared for such rather surprising conditions in an inland city by what we had heard from the Chinese about the place before we arrived. They seemed to be of one mind that it was to be *the* place on the railway between Hankow and Peking. The railway is about three quarters of a mile from the city wall, and already most of the land outside the city wall towards the railway has been bought up by enterprising Chinese from other places, and building has begun. Besides a large station, car-shop, and yard, the railway company has seven foreign houses in course of construction. I hear the superintendent of construction and his staff are to make this their headquarters in a short time. Another Railway from Kaifêng to Honanfu is to cross the Pei-Han Railway here. It has already been surveyed, and Mr. Blom of Honanfu, who passed through here on his way to the coast a few days ago, told us that the officials were busy between here and Honanfu buying land for the road.—*North China Daily News.*

THE CHINESE EASTERN RAILWAY.—Traffic on the Chinese Eastern Railway was opened on the 17th of September between Tashichao and Newchwang, under Japanese management. The section between Tashichao and Liaoyang is expected to be opened on the 2nd of October.

The Russian and Japanese railway gauges vary, and the result has been that in order to allow of Japanese rolling stock being used on the line, one rail on the Chinese Eastern Railway has had to be set in. Of course if the Russians had left the rolling stock this would not have been done, but naturally the Russians had left as little as possible. Not a single locomotive was discovered when the line came into Japanese possession, there being in the sheds only a few trucks, which, however, with Chinese coolies as motive power, have proved useful in transporting the wounded. The opening of the line to traffic for military purposes means that a good deal of rolling stock has been sent over from Japan.

THE MACAO-CANTON RAILWAY PROJECT.—We were informed yesterday that a concession for the construction of a railway from Macao to Canton had been granted by the Chinese Government to the syndicate formed some time ago in Macao, but we learn that no confirmation of this report has been received through official sources. There are good reasons for believing, however, that the Chinese Government will offer no insuperable opposition to the project. The latest information the Portuguese Consulate has on the subject is that the terms are to be discussed at Shanghai next week between Senhor Castello Branco and the Chinese authorities.—*Hongkong Telegraph.*

THE CANTON-MACAO RAILWAY.—Another Peking despatch to the same paper states that the capital of the Canton-Macao railway is to be four million dollars, one half of which is to be subscribed by Portuguese merchants and the other half by Chinese.

THE PEKIN SYNDICATE.—The railway between Tsechow and Taokow has been built by the Pekin Syndicate, but the Chinese government does not allow the carrying of passengers or cargo, and the line does not pay. The Syndicate has tried to sell the line to the government and had consulted with Sheng Kungpao. Sheng, on the other hand, tried to sell the Hanyang iron works, but the Pekin Syndicate refused to accept that offer; thus the matter has fallen through. It is now decided to sell the railway line to the Lu Han Railway at 7,000,000 taels.—*Universal Gazette.*

FRANCE AND THE SOUTHERN CHINESE RAILWAY.—The *Tokyo Asahi's* Peking correspondent wires under date of Sept. 21 that the work on the Ho-n'ei to Lung-chow Railway line via Liao-shan, which France obtained the right to build, is now progressing steadily and will be finished before long. He adds that there are other lines whose plans have already been drawn up by French engineers, and that the influence of France in Yun-nan Province now equals that of Russia in Manchuria before the war.

SHANGHAI-HANGCHOW ROAD.—It is reported that the German Consul at Shanghai, believing that the concession for a British railway between that place and Hangchow, about 100 miles south-west, will lapse, is endeavoring to secure the reversion for Germany, together with concessions in the Yangtse Valley, in order to counteract what is described as Britain's efforts to obtain a preferential position in China.

FENYANG-NANKING ROAD.—PEKIN, 9th October.—The prominent Chinese merchants in Fenyang, Anhui province, wish to establish a railway to Nankin, some Americans being among the capitalists. The promoters have applied to the Department of Commercial affairs through Governor Sing. Viceroy Chang has granted a request with regard to a proposal to establish a railway between Hankow and Changsha, appropriating funds reserved for a year of scarcity.

SZECHUAN-HANKOW RAILWAY.—The railway line from Szechuan to Hankow had been determined to be built with Chinese capital alone under Viceroy Hsi Liang. However, a certain foreigner has petitioned to obtain the concession of the line of railway, but the Waiwupu politely rejected the claim and at the same time requested Viceroi Hsi Liang to work up the railway undertaking sooner so as to check any foreign claims.—*Sin Wan Pao.*

MANCHURIAN RAILWAY.—The gauge on the railroad from Dalny to Newchwang has been changed and locomotives for the new gauge are on their way to Dalny from Japan.

The gauge is being extended to Liaoyang, and it is believed that within two months the Japanese engineers will have succeeded in establishing through communication from Dalny to that city.

In the event of Mukden's falling into the hands of the Japanese the line will be extended to the latter place.

HANKOW TO HANGCHOW RAILWAY.—It is reported that the gentry and merchants of Chekiang province have petitioned the Board of Foreign Affairs for the concession to build a railway from Hankow to Hangchow and from Kiukiang to Foochow.

Petitioners offer to provide capital for the building of the two railways, and in case their capital is insufficient they propose to borrow from the United States.

In return for this concession, petitioners offer to contribute annually towards the funds of the Army Reorganization Department the sum of 200,000 taels.

NANCHANG-KIUKIANG.—The right of laying down the railway between Nanchang and Kiukiang has been granted by the Department of Commerce. The railway company has asked the department to be allowed to issue lottery tickets in order to raise the capital, stating that if the application be granted, 20,000 taels will be presented to the Government for drilling expenses.

REPORTS ON RAILWAYS, CHINA.—Prince Tsai Chen has presented a memorial to the Throne advising that the Imperial Railway Commissioners be instructed to furnish complete reports of railway concessions, giving full particulars of Chinese and foreign signatories, the composition and salaries of the different Chinese and foreign staffs, and particulars of income and expenditure, together with plans of the different lines and works.

All this information is required for the information of the Government, and it will also be necessary in future to furnish quarterly reports to the Government.

Prince Tsai Chin's advice has been acted upon by the Throne.

KIANGSI-KIUNAN RAILWAY.—Chang Taotai and Prefect Chu, who are working for the interests of the Kiangsi-Kiunan railway, have been at Hankow for many days. As the result of meetings with the native gentry and influential merchants, they have been very successful in getting people interested in the enterprise. Already a capital of $400,000 has been subscribed, representing the shares of three individuals.—*Eastern Times.*

KENGCHAU-HANKOW LINE.—An application for laying down a railway between Kengchau and Hankow by some Chinese merchants in Chehkiang has not been granted by the Foreign Office, on the ground that there is no hope of raising the capital.

SHANGHAI-NANKING. — The preliminary work in connection with the construction of the Shanghai-Nanking Railway was to be commenced, at the Shanghai end, on the 3rd of October.

CHENGTIN-TAIYUAN RAILWAY LOAN.—The sum of 500,000 francs has been received at Shanghai from Paris, and will be handed over to the Railway Administration by the Russo-Chinese Bank in a few days.—*Eastern Times.*

CHENGTINGFU-TAIYUANFU RY.—The original concession of the Chengtingfu-Taiyuanfu Railway was given to the Russo-Chinese Bank for the sum of ten million francs of railway bonds, but now the concession has been transferred to a French syndicate for 40 million francs in bonds.

CHENG TAI RAILWAY.—The original concession of the Chengtingfu-Taiyuanfu Railway was given to the Russo-Chinese Bank for the sum of ten million francs of railway bonds, but now the concession has been transferred to a French syndicate for 40 million francs in bonds.—*Universal Gazette.*

SU-HU RAILWAY.—A gentleman of Soochow has filed a petition with the Board of Commerce for the purpose of undertaking to build the railway between Shanghai and Soochow, with a capital of over Tls. 4,000,000, which has already been subscribed. The regulations regarding the undertaking have been submitted.—*Eastern Times.*

THE CANTON-MACAO RAILWAY.—A Peking despatch of the 23rd inst., received by the *Tokyo Asahi*, states that an understanding has been effected between the Portuguese Consul and Sheng Suen-hwai, Chinese Minister of Railways, with regard to the Canton-Macao Railway, whereby China, with the permission of Portugal, will establish a branch of her Customs at Macao.

THE SHANGHAI-NANKING RAILWAY.—In regard to Sheng Kungpao intending to exchange the Shanghai-Nangking Railway for Taichuan, the British Minister at Peking has notified the Waiwupu that he would not consent to the exchange, on the ground that it is contrary to the provisions of the original agreement.—*Universal Gazette.*

INTERNATIONAL RAILWAY CONFERENCE.—According to a Peking despatch of the 23rd inst., received by the *Tokyo Asahi*, the Chinese Government has decided to dispatch four commissioners to the forthcoming International Railway Conference, to be held at Washington, U. S. A., in 1905.

KOREA

RAILWAYS IN KOREA AND MANCHURIA.—While the war is progressing, our railway enterprises are also making rapid progress in Korea and Manchuria. In the first place the Soul-Fusan Railway will, as reported in these columns more than once, be opened to traffic by the end of the current year, and about half the entire line is to be formally opened in November next. The Soul-Wiju line will also be completed within the year. The despatch with which the work is now being executed may be learned from the fact that the work on the line, which is 300 miles in length, if made a permanent one will take no less than five years. To extend these lines into Manchuria, a light railway, to run between Antung Hien and Liaoyang, has been planned, work being already completed as far as a certain point north of Fenghwangcheng from Antung Hien. It is satisfactory to learn that the remaining portion of the work will be finished before December next. As for the railway connecting Soul with Gensan, which is of comparatively minor importance for military purposes, work will be started shortly, but will not be pushed with such speed as in the case of the other lines. To sum up, the Soul-Fusan Railway, connected with the Soul-Wiju, will form the trunk line in Korea, while the Soul-Chemulpo and Soul-Gensan lines will serve as a connecting link between the China Sea and the Sea of Japan. All these routes will then be connected by the Antung Hien to Liaoyang line, which will itself be linked with the Chinese Eastern Railway, thereby effecting the complete unification of the railway systems in Korea and Manchuria. It need scarcely be added that all the light railways will be converted into permanent ones as soon as possible.

In this connection the Soul correspondent of the *Kokumin* states that the influential Japanese residents in Korea endorse the view that a railway should be constructed between Phyongyang and Songchon near Yongheung, about two miles north of Gensan, the latter port to be closed and replaced by Songchon in that event.

KOREAN RAILWAYS.—The raids of the Vladivostock squadron upon some vessels carrying aboard railway materials have affected the progress of the construction of the Seoul-Fusan Railway. The construction work of the Seoul-Gensan military railway is to be started at an early date, but the completion of the time is not yet fixed. The Seoul-Wiju railway is to be finished this year. The Decauville railway between Antunghsien and Liaoyang is to be completed in November next or so, and the work has already proceeded as far as a point north of Fênghuachêng.—*N. China Daily News.*

SEOUL-FUSAN RAILWAY.—The construction of the railway in Korea between Seoul and Fusan has been making satisfactory progress. According to investigation by the Seoul-Fusan Railway Company on the 1st inst., the earthwork is nearly completed for the whole of the railway, while rails have already been laid down to a distance of 105 miles from Fusan in the southern section, and a length of 116 miles from Seoul in the northern section. There remains a distance of some 40 miles on which the work of railing is now being pushed forward. It is reported that the opening of this railway to traffic will take place about the middle of November.

PROPOSED SEOUL-GENSAN RAILWAY.—The Japanese Government, it is reported, has decided to construct a railway between Seoul and Gensan, and the preparations are now being made for commencing on the work. The distance between the two places is about 150 miles, but the district through which the railway will run is hilly, making the construction of the line difficult. It is believed the railway cannot be completed before the end of next year.

THE MASANPHO RAILWAY.—Work will shortly be started on the branch line of the Soul-Fusan Railway, between Samnangjin, north of Fusan, and Masanpho, a distance of over 20 miles. This line will be constructed with the highest possible speed and will ultimately be extended to Chinhai bay.

THE SEOUL-WIJU RAILWAY, PYONGSYONG, Sept. 23rd.—The work of laying down rails between Kyonipho to Hoangjyu on the Seoul-Wiju line has been commenced, and a trial will take place soon.

JAPAN

GOVERNMENT RAILWAYS.—Owing to retrenchment in consequence of the war, the Government will greatly curtail its railway enterprises for the next fiscal year, says the *Jiji*. But the work on the small but important Okaya-Shiojiri section, a distance of about 18 miles, on the Central Railway will probably be started next year, in order to effect a junction with the Hokuriku railway and the Shinyetsu line. In addition it is stated that other work of an imperative nature will also be executed. Under these circumstances the expenditure required for the construction of railways next year will not be considerable.

SANUKI RAILWAY, JAPAN.—The incorporation of the Sanuki Railway with the Sanyo Railway has been privately agreed upon between the two companies, but the terms of purchase are still kept secret. The proposal will be submitted to the general meeting of the Sanyo Railway Company called for the 27th proximo. The Sanuki Railway is one of the few small railway companies which have been successful. Its line runs for about twenty-seven miles from Takamatsu to Kotohira by way of Marugame, and the company has always paid a dividend of 10 per cent. The prosperity of the line is due to the passenger traffic of visitors to the Kotohira Temple. At present steamers are running between Sanban, Okayama prefecture, and Takamatsu, to connect the service of the two railways.—*Kobe Chronicle.*

HOKKAIDO RAILWAY.—The section of the Hokkaido Railway between Netsubu and Ozawa, a distance of about forty miles, having been completed in September, traffic was recently opened on the new line. Hakodate and Otaru are now connected by rail for the whole distance, the total mileage of the Hokkaido Railway being 158 miles. At Otaru the railway connects with the line of the Hokkaido Colliery and Railway Company. The construction of the Hokkaido Railway was taken in hand in June, 1902, and was completed last month. There are eleven tunnels on the line, the longest being one passing through the Inaho Pass, and measuring 5,840 feet, and the next longest the Kuchibun tunnel, of 3,330 feet. The work of construction was finished fourteen months earlier than was originally estimated. Communication between Tokyo and Otaru can now be established by rail in 45 hours.

SEOUL-FUSAN RAILWAY.—The work of excavating the Songhyon tunnel (3,960 feet), the longest on the Seoul-Fusan Railway, was completed, states the *Japan Times*, on the 13th of October, about one month and a half earlier than originally expected. The railway is expected to be completely opened to traffic about the middle of November. It may be stated that rails have already been laid between Yongteung and Cheung-yak, a distance of 110 miles, on the northern section, and Chhu-phung-yong, a distance of 127 miles, on the southern section, the Cheung-yak to Chhu-phung-yong section, a distance of 27 miles, being the only portion awaiting completion.

NANKAI RAILWAY, JAPAN.—The net profit of the Nankai Railway Company for the half-year ending the 30th September is Y179,730, of which sum Y9,000 will be placed to the reserve, Y8,500 will be distributed as bonuses to employés, and Y155,960 as a dividend at the rate of 6½ per cent per annum, carrying forward the balance of Y6,270. This report was placed before the general meeting on the 29th of October, together with the proposal to purchase the Kiwa Railway, and, if approved, the consent of the shareholders will also be asked for the issue of debentures to raise funds required for the purchase.

KWANSAI RAILWAY, JAPAN, October 12th.—The board of directors of the Kwansai Railway Company has declared its net profit for the half-year ending the 30th ultimo at Y471,933. Of this amount, it is proposed to place Y24,000 to reserves, and distribute Y445,200 as a dividend at the rate of 4.2 per cent per annum, carrying forward a balance of Y2,733. The resolution was submitted to a general meeting of the shareholders held on the 29th of October, together with the terms of the purchase of the Naniwa Railway.

TOKAIDO RAILWAY.—The work of doubling the Maisaka-Washitsu section, a distance of five miles, on the Tokaido railway was completed, on the 23rd inst., and it is expected that the traffic on the additional line will be opened in a few days. The following new sections on the O-U line (Government) will also be opened to traffic on or about October 10: the Shinsho-Shimmachi section, a distance of 9 miles 48 chains; the Shimmachi-Kamafuchi section, 5 miles 46 chains; the Kamafuchi-Kurai section, 7 miles 64 chains; and the Kurai-Innai section, 5 miles 30 chains.

SANYO RAILWAY, JAPAN, September 27.—The working of the Sanyo Railway Company for the last half-year is reported to be satisfactory on account of the increased traffic in goods consequent on the war. A sum of Y150,000 was brought over from last account, and the company is now in a position to declare a dividend at the rate of 9 to 10 per cent. The directors, however, endorsed the view of Mr. Ushiba, president of the company, and decided to recommend a dividend at the rate of 8 per cent, as usual, in order to avoid perpetual inequality of dividend, and carry forward a sum of over Y300,000 to next account.—*Kobe Chronicle.*

ENGINEERING AND CONSTRUCTION

PERSONAL

Mr. S. S. Lyon, lately American Consul at Kobe, died there of apoplexy in the 58th year of his age.

Mr. Frank Mills, Assistant Engineer of the Federated Malay States Railways, has been promoted to District Engineer.

Mr. W. R. Pierce, Municipal Engineer of Singapore, has returned to his station and duties, after a vacation in England.

Mr. E. Chin Seng, a native Chinaman of the Straits Settlements, has contributed $3,000 to the fund for founding a Straits Medical College.

Mr. Raymond Halls has been appointed an Assistant Engineer in the Negri Sembilan Extension of the Federated Malay States Railways.

Mr. W. E. Allen, of the staff of the Chinese Engineering and Mining Company, sustained a broken leg recently while riding in North China.

Mr. T. Heslop Hill, Protector of Labor of the Federated Malay States, now in Madras on duty, is expected to continue in India until about April of this year.

Mr. H. N. Ridley and Mr. R. Derry have been appointed members of the Standing Committee for Agricultural Shows in the Straits Settlements during the present year.

Mr. Hugh L. Smith has been appointed representative at Chefoo, China, of the general management of the Transvaal Chamber of Mines Importation Agency, Limited.

Mr. P. T. Taylor, of Sydney, now represents in New South Wales the Meilink Manufacturing Company, of Toledo, Ohio, U. S. A., makers of deposit vaults, safes, etc.

The official title of Mr. G. W. Fryer, Engineer for Construction, F. M. S. Railways, has been changed to Chief Resident Engineer for Construction, F. M. S. Railways.

Mr. Henry W. Peabody, of the great exporting firm of H. W. Peabody & Co., Boston, New York, and London, accompanied by his wife, has sailed for New York via Suez.

Messrs. Brown & Brown, of Pyrmont, Sydney, have been appointed New South Wales agents for the structural materiai manufactured by the Carnegie Steel Company of America.

Mr. Conger, the American Minister at Peking, has notified the Chinese Government that the United States desires to establish a consulate at Chun-chen, Szechuen Province, China.

Mr. A. W. Watts, formerly located in Tientsin, has assumed charge of the shipping department of the Chinese Engineering and Mining Company, at Shanghai, vice the late Mr. Fullerton.

Mr. George C. Delmar has assumed the management of the Sydney (Australia) branch of the New York Export and Import Company, recently opened in that city at York Chambers, Market street.

Mr. Montgomery Schuyler, the new American Consul-General at Bankok, passed through Manila about three weeks ago en route to his future post. Mr. Schuyler formerly occupied the post of secretary to the American Ambassador at St. Petersburg.

Messrs. Valdimir Lorenc and Victor Lorenc, engineers of Budapest, Hungary, have been granted the privilege of making, selling, and using an invention for "self-regulating driving gear particularly applied to motor cars," within the Hongkong Colony, for a term of fourteen years.

Mr. Proust, manager of the Malaysian Company, according to the *Malay Mail*, has been ill with choleraic malaria. Mr. Dubois is in Raub Hospital recovering from typhoid, and Mr. Steele, one of the Raub electricians, who has completely broken down, has gone to Singapore for treatment.

Mr. F. H. Grinlinton, after making a thorough study of the survey systems of the Federated Malay States, speaks in the highest terms of praise of the Survey Department of Selangor. He also says that during his experience of thirty-five years in the East he has never seen a country where agricultural prospects were brighter.

Mr. Julius G. Lay, the successor of Mr. McWade as American Consul-General at Canton, arrived in Manila, accompanied by Mrs. Lay, aboard the army transport *Thomas*, and has proceeded to his new post. Mr. Lay has been in the consular service of the United States for more than fifteen years, the last five of which he spent in Barcelona, Spain.

Following are the authorized architects of Hongkong, under section 7 of the Public Health and Building Ordinance, 1903, as published in the *Official Gazette* of the Colony in January, 1905: Messrs. H. W. Bird, G. Blood, J. F. Boulton, A. Bryer, W. Chatham, W. Danby, A. Denison, H. G. C. Fisher, C. H. Gale. L. Gibbs, A. E. Griffin, B. B. Harker, E. M. Hazeland, A. H. Hewitt, A. H. Hollingsworth, A. Shelton Hooper, P. N. H. Jones, W. P. Lambert, J. E. Lee, J. Lemm, D. Macdonald, J. Orange, A. H Ough, T. L. Perkins, S. J. Powell, E. A. Ram, C. H. Rew, C. B. Thomas, H. P. Tooker, A. Turner, C. Warren, Wong Fat Son, Wong A. Cheong and A. Wright.

DEATH RECORD

The death of Mr. H. A. W. Aylesbury, of Perak, is announced. He was the senior partner in the firm of Aylesbury & Garland, of Tapah.

Mr. Robert Anderson, Superintendent Engineer and Manager, respectively, of the Prye River Dock Company, and subsequently manager of Keppel Harbor Dock, Singapore, died at Penang the latter part of January. He was well known in engineering and shipping circles of the East.

Recent Shanghai papers chronicle the death of Mr. George Fullerton, of the Chinese Engineering and Mining Company of that city. Mr. Fullerton was well known on the China Coast and universally esteemed. He had been feeling unwell, and on the morning of January 5th remained indoors instead of going to his office. Some papers were sent round to him in the course of the morning and he signed them. Later, still feeling poorly, he sent his boy to the club for some ice, and it was on returning from this errand that the boy found his master lying on the bed dead. A book he had been reading had fallen on the floor. Death apparently was due to heart failure. Mr. Fullerton, who was Shanghai-born, was some years ago in Messrs. Butterfield & Swire; he went to Hongkong, and resided there for some years, and latterly had been identified with the interests of the Chinese Engineering and Mining Company

RAILWAYS, SUPPLIES, ETC.

PORT ARTHUR RAILROAD.—Advices from Tokio announce that the railroad between Changlingtse and Port Arthur has been repaired by the Japanese and was opened to traffic on January 15th.

KOWLOON-TO-CANTON RAILWAY.—Announcement was recently made in Hongkong to the effect that the present year will witness the beginning of the construction of the long-delayed Kowloon-to-Canton Railway.

PAINT CONTRACT AWARDED.—The Borneo Company, Limited, Singapore, has obtained the contract for the supply of Siderosthen paint to the Railway Department of the Federated Malay States, for the present year.

CHINESE FUNDS FOR RAILROADS.—The Shansi bankers in Peking are just now busily engaged in raising funds for the construction of railways in their province, so as to anticipate the Russian concessions proposed for that locality.

STRAITS RAILWAY EARNINGS.—The total receipts of the Singapore-Kranji Railroad during the eleven months of 1904 ending November 30th were $180,543 as against $120,417 realized during the corresponding period in the previous year.

RAILWAY CONSTRUCTION IN QUEENSLAND.—The Queensland Government has decided to construct railway lines with the object of opening up districts in which large areas of Crown Lands are at present unoccupied, to make the land available for closer settlement.

STEAM TRAM SERVICE WITH SYDNEY.—The people of Balmain are endeavoring to obtain a more direct tram service with Sydney. Given the necessary authority, a syndicate is ready to be formed to construct a private line. The proposed motive power is steam.

CHINESE RAILWAY PROJECT FAILS.—A Chinese request of the Peking Government to be allowed to bnild a railroad to carry coal from the Western Hills to Peking has been refused, partly on the ground that the capital proposed to be raised, Tls. 200,000, was insufficient, and partly on the ground of illegality.

LOCOMOTIVE CONTRACT.—Messrs. Robert Stephenson & Co., Limited, of the Springfield Locomotive Works, Darlington, have been awarded, in the face of severe competition, an order for ten large 4-wheeled coupled passenger locomotives, with 4-wheeled leading bogie and 6-wheeled tenders, for the Shanghai-Nanking Railroad.

HANOI-YUNNAN RAILWAY.—Advices from Indo-China are to the effect that the French Railway between Hanoi and the Yunnan frontier, via Liaoshanhien, will shortly be completed, when work on the French Yunnan Railways will immediately begin. The survey of these lines has already been made, and the route decided upon.

AMHERST-MOULMEIN RAILWAY PROJECT, BURMA.—One of the railway projects contemplated in Burma is a line between Amherst and Moulmein, which will bring a pleasant seaside resort within three hours' journey of the latter place. It will later on be extended to Ye and Tavoy, which will open up a large country to trade and cultivation.

AMERICAN RAILWAY TRUCKS FOR CHINA.—The Quong Tuck Company, of Seattle, Wash., has secured an order for equipment for construction of a new railroad in China to run from Sun Ning northward into the Province of Canton. Ultimately the line will be ex-

tended to Fuchan, to connect with a line running to Canton. American equipment is to have the preference.

RAILWAY EXTENSION IN CHINA.—The Board of Commerce of the Peking Government has formulated plans for the building of certain railways in Fokien Province. It is proposed to build a railroad from Foochow to the Chao Chou-Swatow line, which is already in course of construction. It is reported that the principal shareholder in the enterprise will be a millionaire Chinese named Lin, who is regarded to be the wealthiest native of that province. Lin also has valuable possessions in Formosa.

STEEL RAILS FOR RANGOON.—The steamer *Vimeira*, loaded by Barber & Co., of New York, has sailed from Baltimore with 14,631 steel rails, valued at $75,000, for Rangoon, India. This is the second full cargo of rails shipped to that place since December 1st, the *Firth of Dornoch*, which sailed from New York on that date, having taken a similar cargo. Another steamer, the *Vittoria*, is due shortly at Baltimore to load for the same port, and it is understood that a fourth vessel will soon be chartered for another large shipment.

SEOUL-FUSAN RAILWAY.—It is announced in Korea that the Seoul-Fusan Railway has proved rather a failure thus far owing to the rapidity with which the track has been laid and the instability of the wooden bridges erected. The journey from Seoul to Fusan occupies more than twenty-four hours in consequence. It is hoped that at a near future date the wooden bridges will be replaced by iron structures and that then the distance of 275 miles between the two terminals will be covered in a little less time than eleven hours.

ANOTHER RAILROAD FOR BURMA.—In addition to the railway program sanctioned for Burma, the Lieutenant-Governor, Sir Hugh Barnes, has recently suggested to the Government of India the immediate construction of a Southern Shan States railway. It would be a narrow gauge line from the Mandalay Railway to Tannggyi, a distance of 112 miles, costing about $2,750,000. The line would open up a fertile region suitable for planting and mining enterprises. The project is warmly supported by the mercantile community at Rangoon.

ELECTRIC LIGHTING, TRACTION, POWER, ETC.

HIGH LEVEL TRAM PAYS DIVIDEND.—In 1904 the Hongkong High Level Tramway paid a dividend of 15 per cent and carried a surplus of $20,000 to reserve.

KAWASAKI-KANAZAWA TRAMWAY, JAPAN.—The Minister for Home Affairs has granted permission for the construction of an electric tramway between Kawasaki and Kanazawa.

AN ELECTRICAL ADVISER.—The Government of India is to have an Electrical Adviser whose office will be appointive. He will be required to render advice to local governments, state railways, municipalities, and district and local boards.

MONO-RAIL TRAMWAY FOR SIMLA.—Simla is about to lead the way in India in connection with mono-rail traction. The Municipality of that place has voted funds for the construction of a tramway on this principle from Sanjoull to the Simla Ridge.

ELECTRICAL INSTALLATION FITTINGS, SHANGHAI.—The Municipal Council of Shanghai has opened bids for furnishing the city with the following electrical installation fittings: Incandescent lamps, 16,500; electric fans, 271; vulcanized wire, 27,528 yards, together with 73 switches, 28 electroliers, 130 brackets, 501 shades and 90 lampholder adopters.

CEYLON MINERAL THORIANITE.—The new Ceylon mineral thorianite is bringing £30 per cwt. because of the thorium it contains. There is to be no royalty, and planters are anxiously exploiting the new "T" which may be a rival to orange and broken pekoe, in the future. Thorium is a rare metal resembling aluminum occurring in thorite, an equally rare mineral found in Norway. It is used in making the mantles for incandescent lights.

PENANG ELECTRIC LIGHT EXTENSION.—The electric light plant and mains of Penang are to be exteuded so as to provide supply for the tramway, and also private consumers in the Sepoy Lines District. The extension includes the provision of a 300-kilowatt steam dynamo and the necessary additions to boilers and steam pipes at the generating station; a sub-station equipped with a tramways motor-generator and balancing plant at Western Road, together with the necessary cables. The cost of these additions is estimated at £9000.

ELECTRIC LIGHT COMPANY, BRISBANE.—The City Electric Light Company, Limited, has been registered at Brisbane, Queensland, with a capital of £100,000, iu shares of £1 each, to take over and continue in all its branches the electric lighting business of the Brisbane Electric Supply Company, Limited. The registered shareholders are Edward John Holmes, Edward G. C. Barton, William J. Young, William M. E. L'Estrange, Alfred Ward, Catherine Ward, John F. Church, John T. Isles, Theodore Unmack, Sydney C. Lecky, and Edward Gaffney.

OPENING OF SINGAPORE TRAMWAYS.—It is the present intention of the constructors of the tramway lines in Singapore to complete them so that they can be opened to the public service some time next month. Messrs. Dick Kerr & Co.'s staff is making gigantic efforts to get the power-house, the line, cables, etc., completed, and the cars have arrived. Mr. L. D. Tandy, of the firm of Vincent & Tandy, London, has been appointed manager of the company to work the tramways. Mr. John Anderson will be a director, and Sir Frank Swettenham has been asked also to join the board.

LIGHTING OF ADELAIDE, S. A.—The lighting of Adelaide is again under discussion by the city fathers. Five years ago they gave the South Australia Electric Light Company the right to carry wires through the city on condition that it erected and maintained free of cost to the council 30 arc lamps of 2,000 c.p. each in the principal streets. This contract expiring in January, the council recently invited tenders for the lighting of the streets so supplied. It received three tenders, one from the present suppliers, who quoted £640 per annum; another from the South Australia Gas Company, whose price was £864; and a third from the Kitson Light Company who was not prepared to undertake the work for less than £1334. It was decided to accept the lowest tender.

IMMENSE TRAMWAY CONTRACTS.—The London branch of J. G. White & Co. has secured two of the biggest tramway contracts ever obtained. The London office was established several years ago, and has carried out various important works, including the construction of the permanent way of the London County Council Electric Tramways. One of the two contracts now secured is for the reconstruction for electric traction of the whole horse tramway system of Belfast, at an inclusive price of £545,404. There will be numerous sub-contracts, as the White concern does not make steam and electric machinery or tramway cars, their specialty being the permanent way. The work is to be completed within nine months. The same company almost simultaneously secured a contract for reconstruction of the Montevideo tramways, also at present worked by horses, and the figure is about £450,000.

WATERWORKS AND IRRIGATION

PORT DICKSON RECLAMATION WORKS.—A sum of $10,000 will be spent within the next year on the reclamation works at Port Dickson, Straits Settlements.

RANGOON RIVER SURVEY.—The Burma Government has allowed an expenditure of Rs. 48,800 by the Rangoon port commissioners for the survey of the Rangoon River.

SARAWAK (BORNEO) WATERWORKS.—The Sarawak Estimates for 1905 show an expected revenue of $1,054,140 against expenditure of $1,270,497. Of the expenditure $218,745 composes a fund for the construction of a new city waterworks plant.

HARBOR IMPROVEMENTS AT AUCKLAND.—Extensive harbor construction work is being done at Auckland, New Zealand, the total outlay proposed being in excess of a million dollars. A new railway wharf will be constructed by the Ferro-Concrete Company, at a cost of $215,000.

NEWCASTLE SEWER SCHEME.—The sewerage scheme at Newcastle, N. S. W., is being pushed ahead a little more rapidly, an extra £1000 per month being provided by the Government to afford employment to men who cannot get work at the collieries owing to the slackness of trade.

WHARFAGE IMPROVEMENTS AT DUNEDIN, N. Z.—Considerable improvements are to be made to the wharfage accommodation at Dunedin, N. Z., necessitated by the large ocean-going vessels coming up the harbor to the city. The Harbor Board's engineer is preparing plans and specifications.

MADRAS IRRIGATION PROJECTS.—The Government of India has been dealing very fairly with Madras so far as new irrigation projects are concerned. It was feared that the provinces in the north, especially the Punjab, would be unduly favored in the matter of funds, but so far this has not been the case. The Government of India have just sanctioned for immediate execution the big Maupad tank project in Nellore District, which is estimated to cost Rs. 12 lakhs; and it is also stated that the Government of India is about to sanction an estimate for a large pumping station which will provide irrigation for Divi Island in the Kistna District. Both of these projects are excellent in their different ways, and the Government of India's sanction of them augurs well for the fate of the other big and small irrigation projects that have been under consideration by the Madras Government.

SHIP BUILDING IN VICTORIA.—At the works of the Australian Forge and Engineering Company, Prop. Ltd., of Williamstown, a 100-ton steel barge is being built for the Adelaide Steam Tug Company. This is the second largest vessel ever attempted in Victoria, the largest being the dredge *John Nimmo*, built for the Victorian Government some 18 years ago. The new vessel is 180 ft. long, 32 ft. beam, and 14 ft. deep. Pneumatic machinery is employed to do all the drilling, riveting, and caulking required. Some time ago the Public Works Department placed an order for a new dredge in Glasgow, the plans having been prepared by the officers of the department. Copies of these plans were retained, and the Premier has now promised that, given the consent of his colleagues in the Ministry, he will invite tenders locally for a second dredge with a view of providing employment for the iron trade, which in Victoria, as elsewhere, is very slack at the present time.

PUNJAB POWER ASSOCIATION.—Sir Thomas Higham, late Public Works Secretary to the Government of India in the Irrigation Branch, has returned to India, says *The Englishman*, and is now in Lahore to represent the interests of the Punjab Power Association. This association of British capitalists aims at harness-

FAR EASTERN ENGINEERING AND CONSTRUCTION

PERSONAL

Sir Herbert Thirkell White succeeds Sir Hugh Barnes, as Lieutenant-Governor of Burma.

MR. H. J. Highfield has been appointed an Assistant Surveyor on the Kuala Gemas-Kuala Semantan Railway Survey, F. M. S.

Mr. L. D. Tandy, General Manager of the Singapore Tramways, has arrived at his post of duty and taken over the management of the lines.

Mr. K. Takahashi, vice-Governor of the Bank of Japan, has again left Tokyo for London, presumably in connection with the loan questions.

Mr. S. Preston, Secretary to the Government of India, Irrigation Department, will visit the Punjab next month in connection with the proposed canals.

Captain Ahern, U. S. Army, Chief of the Philippine Bureau of Forestry, has returned to Manila from the United States where he spent his vacation times.

Messrs. Masuda and Hata, of the Railway Construction and Traffic Bureau of Japan, have left Tokyo for Korea and Manchuria in order to inspect railways there.

Messrs. Worcester and Luzurriaga, of the Philippine Commission, inspected the Insular Government's rice farm in Tarlac Province, Luzon, the fore part of this month.

Mr. Hooper, Assistant Engineer to the Executive Engineer's Office, Batu Gajah, F. M. S., will soon be stationed at Ipoh to look after that division of the Public Works Department.

Mr. A. E. Benzie, the Secretary of Messrs. Howarth, Erskine & Co., Ltd., of Singapore, and Mrs. Benzie have proceeded home on vacation. During Mr. Benzie's absence, Mr. F. Pollock will act as Secretary.

Mr. J. E. Dunlop has arrived in Sandakan for the purpose of exploiting a guano concession in Borneo granted to himself and his brother. There are heavy deposits of bat guano in Gomanton and other bird's-nest caves of the Island.

Messrs. Howarth Erskine, Ltd., of Singapore, have won a case in the Senior Magistrate's Court at Ipoh, S. S. against Tan Chee Yeong, a miner of Papan, to recover a sum of $2,600, balance due upon a running account for engines and fittings. Judgment was given for $2,550 with costs and interest at 8 per cent.

Mr. Ordan Clyde Cullen, a citizen of the United States, has been granted exclusive privileges in the Straits Settlements, in respect of the following inventions: (1) an invention for self-registering electrically sectional targets; (2) an invention for improving firearms; (3) an invention for "improvements in or relating to apparatus for measuring and recording the velocity of projectiles."

Mr. Fryer, the Chief Resident Construction Engineer of Railways, F. M. S., has just returned to Singapore from Malacca where he inspected the railway works in progress there. The fifteenth mile of the line will shortly be opened for traffic, but connection with the main line will not be made until the end of the present year. That section embraces another ten miles. At the present rate of the Malacca railway's progress, says a Straits paper, 'the Johore line won't be finished for the next six years to come.

RAILWAYS, SUPPLIES, ETC.

PEKING-KALGAN RAILWAY.—The Chinese are seriously contemplating the construction of the Peking-Kalgan railway.

RAILWAY TUNNELLING, KOREA.—The cutting of the Tongchak tunnel on the Seoul-Fusan line has been completed.

NORTHERN RAILWAY, SIAM.—The construction of the proposed northern railroad from Bangkok up the Menam Valley promises to divert to Siam whatever trade with Western China has hitherto traveled through Burma.

CANTON-HANKOW RAILWAY.—It is reported that the Chinese officials at Peking intend to remain obdurate in the matter of cancelling this railway concession, holding that J. Pierpont Morgan's Company is not American.

HOKKAIDO RAILWAY, JAPAN.—It has been decided to effect a junction between this railway and that of the Hokkaido Colliery Company. About a mile of track will have to be laid, and work on the extension will begin about April 1st.

FIRST GERMAN LOCOMOTIVE, JAPAN.—A trial of a German locomotive, recently imported by the Japan Railway Construction and Traffic Bureau, has resulted satisfactorily. This is the first time that a German locomotive has been used on the Government railways of Japan.

KYUSHU RAILWAY, JAPAN —This company is about to place 1500 additional freight cars on its line in order to facilitate the transportation of coal from various mines in Kyushu, where stocks have reached over 200,000 tons and are still increasing at the rate of 10,000 tons per day.

PEKING-HANGKOW RAILWAY.—M. Jadot, Engineer-in-Chief of the Peking-Hankow Railway, has notified the Brussels interest that the line is now finished as far as the Yellow River, the total length being 600 kilometers. The last 300 kilometers, including the laying of the rails, were constructed during 1904.

NANKING-SHANGHAI RAILWAY, CHINA.—The Hongkong and Shanghai Bank has paid to Sheng Kung Pao £250,000 on behalf of the promoters on account of the Nanking-Shanghai Railway. Pau Taotai, the director of the line, applied for and obtained the sanction of Sheng Kung Pao to draw Tls. 100,000 of this for the purchase of the land for the line.

RAILWAY ENTERPRISE, HUNAN.—Work will shortly be commenced on a railway starting from Changsha, Province of Hunan, China, and connecting with the Szechuan-Hankow road via Changte and Chenchow, also in the same province. The cost of the undertaking is estimated at Tls. 10,000,000 of which Tls. 6,000,000 are to be raised in Hunan.

SEOUL-FUSAN RAILWAY, KOREA.—Mr. Megata, Japanese Financial Adviser to the Korean Government, says it is almost beyond question that the Seoul-Fusan Railway will have a salutary effect on the development of Korean industries. But the efficiency of that line depends upon the Port of Fusan, so that there arises the necessity of effecting improvements of the harbor.

LUHAN RAILWAY, CHINA.—The Luhan railway has completed its permanent way as far as Hwei-Luh. A construction train runs from that town to Chang-te, and from here to Yen-Cheng some considerable distance has to be traversed in carts or on horseback. The line from Yen-Cheng, which is in Honan, has been completed to Hankow, and passengers can now travel between these two places.

RAILWAY SUPPLIES, STRAITS SETTLEMENTS.—Tenders have been accepted by the Government of the Straits Settlements for the following works in connection with the Singapore-Kranji railway extension: Messrs. Guthrie & Co., for the supply of sleepers; Messrs. Stiven & Co., for the cement; Teck Chiang, for the supply of stone; Mr. S. Arunasalam, for carting; Mr. S. Vincent, for earthwork.

SELANGOR RAILWAY GUARANTEE FUND, F. M. S.—The General Manager of Railways, Federated Malay States, announces that it has been decided to wind up the Selangor Government Railway Guarantee Fund, and subscribers whose moneys have not been returned or their representatives are requested to apply to the Chief Accountant and Auditor, F. M. S. R., for them on or before 30th June, 1905, or the amount will be forfeited and distributed among those who were subscribers on August 31st, 1904.

RAILWAY CONSTRUCTION, SOUTH AUSTRALIA.—The South Australian Government has accepted the tender of Smith & Dyke, of Adelaide, for the construction of the line from Tailem Bend to Pinaroo. The work includes the construction of 86½ miles of permanent way and 3½ miles of siding, and the maintenance of the same for six months from the date of completion; but a departure from the original specification excepts the station buildings. The rails, signals, and weighbridges are not included in the price at which the contract was let, which was $321,230.

A bill is before parliament to authorize the construction of a line of railway from Grove Hill Station in the Northern Territory to Iron Blow, a distance of 13 miles. The line offers no engineering difficulties, the steepest gradient being 1 in 40 and the sharpest curve has a radius of six chains. The engineer for the proposed company is Mr. James Chapman Lovely, of Adelaide.

RANGOON-TO-SHANGHAI RAILWAYS.—Referring to a suggested railway from Rangoon to Shanghai, an English advocate of the plan says: "The road is now completed to Lashio, in the Northern Shan States. That line does not pay, and it cannot do so until it is constructed at least past the Kunlung Ferry on the Salween to the borders of China. Then it would attract Chinese caravan traffic. The route as far as the Mekong western watershed is comparatively easy for a mountain railway. If the eastern bank of the Mekong can be gained by a reasonable route, the Yangtze can be reached without very great difficulties. When Shanghai has connected itself by rail with Chung-king, on the Yangtze, it will be time to find means of joining the two railroads. The Yangtze has abundance of power for an electric railway; so has the Mekong This line will be an answer to, and will supplant, the Trans-Siberian Railway." In connection with the above it is interesting to note the several steamers that have recently sailed from Baltimore and New York to Rangoon with cargoes of steel rails.

HANKOW AND PEKING RAILWAY.—The railroad between Hankow and Peking is expected to be finished by April, all but the bridge over the Hoang Ho River, which, on account of the numerous floods, is a big undertaking in itself, being two miles long. Three hundred and eighty kilometers from Hankow north to Yencheng are now open to traffic. From Yencheng construction trains run between 200 and 300 kilometers further to the Yellow River. From Peking south 390 kilometers are now open to traffic as far as Shen Te. Thence construction trains run daily as far as Chang Te, at the 580th kilometer, and as occasion requires 60 kilometers further to a place called Wei Hin. Thence 100 kilometers are under construction as far as the Yellow River. About the middle of this part under construction the Peking syndicate's line from Huai Ching eastward crosses the railway. It will doubtless eventually be connected with the German

The death is announced of Mr. John O'Brien Saunders, C.S.I., Managing Proprietor of *The Englishman*, Calcutta. Mr. Saunders returned to England from India last year. He was the son of the late Mr. John O'Brien Saunders, the former proprietor of *The Englishman*. Deceased came out to India in 1876 to conduct the paper and he had kept up his connection with that paper until the day of his death. Mr. Saunders was created a C.S.I. two years ago. His death is deeply regretted in journalistic circles of India and the Far East.

Mr. Hisashige Tanaka is dead in Japan at the age of 61 years. He was the pioneer of electrical engineers in Japan, and most of the Japanese electricians had worked under him. As early as 1873 he manufactured a large number of the Siemen's telegraph machines for the Japanese Government. In that year he sold his factory to the Engineering Department and he himself became an engineer in the Government service. In 1882, when the Government was engaged in strengthening coast defence, he established a factory at Shibaura, in order to manufacture mechanical mines and fish torpedoes. These works were subsequently converted into the Shibaura Engine Works. In 1886 he made a tour through Europe and America, and on his return invented an alarum. The advancement of the Japanese electric engineering work to its present state is largely attributable to the efforts of the deceased.

FIRE RECORD

KUDAT, BRITISH NORTH BORNEO.—Practically the whole of this town was destroyed by fire recently. Loss, about $175,000; insurance, about $10,000.

TIENTSIN, NORTH CHINA.—Clarence House, a high old building on the French Concession, Tientsin, has been totally destroyed. The occupier was insured for Tls.10,000.

BURMA ELECTRIC COMPANY, SINGAPORE.—The plant of the Burma Electric Company, in Phayre-st, and the building it occupied, have been almost totally destroyed by fire. The loss is not announced, but is considerable.

FIRE LOSSES IN KOBE.—The losses to various Japanese insurance companies in the recent theater fire at Kobe, Japan, are approximately estimated at Y.50,000, variously apportioned among six companies.

TIGBAUAN, PANAY, PHILIPPINE ISLANDS.—The town of Tigbauan, Province of Iloilo, Panay, Philippine Islands, has been totally destroyed by fire, and 2000 people are homeless. The financial loss is estimated at about -P-200,000.

CEBU, PHILIPPINE ISLANDS.—Details from the city of Cebu, Philippine Islands, covering the recent big fire there, place the total loss at about -P-1,850,000 on which the insurance amounts to -P-750,000. The commercial stocks destroyed amount to approximately -P-1,000,000, the furniture -P-30,000, and the buildings -P-750,000.

RAFFLES SQUARE CONFLAGRATION, SINGAPORE.—Fire recently destroyed the property occupied by Messrs. Rodyk & Davidson, solicitors and advocates, and the Transatlantic Trading Company, Singapore. A Kling firm occupied the front part of the godown down stairs, and it is supposed that the fire originated there. The loss was large, partially covered by insurance. The building is owned by the Messrs. Meyer Brothers.

WORK OF FIRE BRIGADE, HONGKONG.—According to the report of the Superintendent of the Fire Brigade, Hongkong, for 1904, there were 57 fires and 64 incipient fires during the year, as against 49 and 55 in 1903. The estimated damage caused by the fires was $761,736, and by incipient fires $743. There was an intermittent supply of water in the mains from January 1st to July 3rd, during which period sea water was used as much as possible to save the fresh water. One serious fire occurred during this period, February 25th, at 444 Des Voeux Road West, where six houses were wholly or partly destroyed. The total damage was estimated at $62,000, part of which was covered by insurance. Two large fires took place at the Kowloon godowns, the total damage being $180,000, covered by insurance.

RAILWAYS, SUPPLIES, ETC.

JOHORE RAILWAY MATERIAL.—The Straits Steamship Company has secured a contract for the carrying of material for the Johore Railway.

NEW STATION, PORT SWETTENHAM.—A new railway station is to be built at Port Swettenham, and the present buildings are to be utilized as stores.

NEW RAILWAYS, JAPAN.—The Railway Works Bureau, Yokote, Ugo, Japan, has been making surveys in the mountainous part of the Province of Ugo for a new railway.

PEKING-TO-KALGAN LINE.—It is announced at Peking that the money for the Peking-Kalgan Railway is to be raised in the provinces and not taken out of the Imperial Treasury.

TOKYO-NIIGATA (JAPAN) RAILWAY SERVICE.—The Nippon and Hokuetsu Railway Companies will make an effort to run through trains between Tokyo and Niigata by May 1st.

SOUL-FUSAN RAILWAY, KOREA.—The Soul-Fusan Railway Company has decided to convert the Soul-to-Yong-teung-pho Section into a double line, and the construction work is about to begin.

RAILWAY EXTENSION, SINGAPORE.—The expenditure on the Singapore railway extension to the Tanjong Pagar Docks, to January 31st, 1905, was $32,245. Estimated expenditure on whole extension, $1,407,908.

RAILWAY MATERIAL, SWATOW.—A large shipment of railway material for the Swatow-Chowchowfoo Railway, has been received at Swatow, and it is expected the line will be ready for traffic in eighteen months.

COAL FOR THE BURMA RAILWAYS.—The East Indian Coal Company have obtained the contract for the supply of the bulk of the Bengal coal at Rangoon and Bassein during the period April 1905 to March 1906.

FLOOD PROTECTION, BURMA RAILWAYS.—The bank near Peinwegon Station is to be raised at a cost of Rs. 6,000; and Rs. 2,500 are to be spent on constructing a channel to protect the station itself against floods.

PUNJAB-BOMBAY NEW ROUTE.—The Agra-Kosi section of this line which will establish a new route from stations in the Punjab to Bombay *via* Delhi, India, and lessen the time in transit by about four hours, has been opened to the public.

HILL RAILWAY, PERAK.—The projected hill railway at Perak is now taking definite shape, a syndicate being in process of formation to put the work in hand so soon as the necessary formalities with the authorities have been satisfactorily settled.

YUEH HAN RAILWAY AGREEMENT.—It is said that the American Government is now willing to cancel the agreement for the building of the Yueh Han (China) Railway, provided a reasonable premium is paid to the American shareholders.

PENOTAL GEORGE TUNNEL, B. N. B.—The railroad tunnel at the Penotal George, British North Borneo, has finally been cut through. This, according to The British North Borneo *Herald*, assures the train running into Tenom some time the present month.

FUKIEN RAILWAY, CHINA.—The Peking Mandarins, hailing from Fukien Province, have sent in a representation to the Throne, with a view to acquiring the right to construct the Fukien Railway, with capital to be raised from the local Chinese merchants.

FUJIMI-OKATANI (JAPAN) RAILWAY EXTENSION.—Work on this section (some 17 miles) of the Government Central Eastern Railway is progressing steadily. It is hoped to have the line in operation by the beginning of June, when transportation of new silk cocoons will keep the road busy.

TRAIN SERVICE SUSPENDED, NORTH CHINA.—Official notice is given by the Imperial Railways of China, that owing to unforeseen circumstances, it has been deemed advisable to suspend the train service between Koupantsze, Yingkow, and Hsinmintun, North China, until further notice.

TUNNEL COLLAPSE, JAPAN.—A part of the Kumasaka Tunnel near Hosorogi Station on the Hokuriku Railway, suddenly collapsed one morning recently, presumably due to the snow which had fallen in that locality. The traffic between Kanazawa and Fukui has consequently been interrupted.

RAILWAY EXTENSION, JAPAN.—The Railway Construction and Traffic Bureau of Japan has decided, it is announced, to effect a junction between Sonobe on the Kyoto Railway and Ayabe on the Maizuru Railway, and the proposed line is now being surveyed. The length of the section will be 24 miles.

NEW ROLLING STOCK, F. M. S.—Two new trains with cars of the corridor type, divided into compartments to seat four and fitted up with lavatories in each, have been ordered from England for the Federated Malay States Railways and will soon be running, whereupon, it is announced, "class distinction" will disappear.

SYDNEY'S NEW RAILWAY STATION.—It is expected that the Central Railway Station buildings will be ready by the early part of next year. Tenders are shortly to be invited for the requirements in the way of tanking and other water services. The curbing and guttering to the approaches are also to be carried out by contract.

BURMA RAILWAY EXTENSION SURVEY.—Government of India has sanctioned survey of following lines in connection with Burma Railway Extension Survey: East Daga Railway Survey, 62 miles; Pegu-Synam Survey, 67 miles; Moulmein-Amherst Railway Survey, 46 miles. The surveys have been placed under the control of the Government of Burma.

TSE-POO RAILWAY, CHINA.—The railway at Tse-poo, Shansi Province, China, will, according to Chinese advices, shortly come under Chinese control, for which reason Chin Tien Yu, once a student in America, has been appointed to inspect the accounts in connection with the deal. Mr. Chin is a civil engineer by profession.

RAILWAY CONSTRUCTION, FRENCH INDO-CHINE.—A decree has been published authorizing the construction of the following railways in Indo-Chine: Extension of the Saigon Railway to Khan-Hoa—cost, $5,840,000; a line from Phan-rang to Danhim, being the first section of the Lang-Bian branch line—cost, $3,300,000; a line from Hué to Kwangtri—cost, $1,400,000.

RAIL ENGINE CONTRACTS, INDIA.—The Springfield Locomotive Works, Darlington, England, has secured the contract for ten powerful passenger locomotives and tenders for service on the Indian State Railways. The engines are of the 6-wheeled coupled type, with leading bogie, 6-wheeled tenders and cylinders 19-inch diameter by 26-inch stroke.

RAILWAYS IN FRENCH INDO-CHINE.—The construction of the following railways in Indo-Chine has been officially authorized.—(1) An extension of the Saigon Railway to Khan-Hoa—cost, 29,200,000 fr.; (2) a line from Phan-rang to Danhim, being the first section of the Lang-Bian branch line—cost, 11,500,000 fr.; (3) a line from Hue to Kwangtri—cost, 7,300,000 fr.

LOCOMOTIVES FOR SIBERIAN LINE. — The East St. Louis Locomotive Works, America, recently received from St. Petersburg an order for 100 light locomotives, to be delivered within three months, for use on the Government line across Siberia. The vice-President of the works announced that the Company would not be able to fill the order within the required time.

INNAI-YOKOTA (JAPAN) LINE.—Owing to the tardy manufacture of rails, the construction of the Innai-Yokota section of the Government Railway's "O-U" line has been delayed of late, but now that these rails have all been made, the work is resuming its usual progress, and it is generally believed the section in question will be ready for service by the beginning of August, at the latest.

AUSTRALIAN HARD WOODS, INDIAN RAILWAYS.—As a result of the visit of Mr. J. Adams, F.C.H., on behalf of the Government of India, to Australia to investigate the possibilities of that country as a source for the regular supply of wooden sleepers for Indian Railways, trial orders of New South Wales sleepers are being placed with certain railways with the prospect of more to follow.

MALACCA-PULAN SEBANG LINE.—Up to January 31st, 1905, $991,656 have been spent on this railway, the total sum voted for it in the estimate being $1,036,650. The progress in earthwork is satisfactory. Seventy per cent of this part of the construction has been executed. Out of a total of eighty bridges and culverts fifty-five have been completed and sixteen are in progress. The rail-head is now at the 8th mile.

CANTON-HANKOW RAILWAY EQUIPMENT.—William M. Pinkston, one of the officials of the Canton-Hankow Railway Company, China, has gone to the United States to purchase material for the construction of the projected line between the two cities named, of which 20 miles have already been finished. About 750 miles of road between Canton and Hankow are to be built. The work will begin in June, and is expected to be completed in three years. A great deal of the material, including the ties, will probably be purchased on the Pacific Coast.

TONQUIN RAILWAY, WESTERN CHINA.—The French railway from Tonquin, which is to open out Western China, has been in course of construction for several years and good progress has been made; but the work is now proceeding slowly as the hill country has been entered and the difficulties to be overcome are considerable. Tunnels, galleries, and rock-cuttings are a necessity, and as local labor is scarce the engineers have no easy task before them. There is no question of money, as the railway is to be finished at all costs, for the French hope by its means to divert the bulk of the Yunnan and Szechuen trade to their ports in Indo-Chine.

OPENING UP OF KELANTAN STATE, SIAM.—To fully develop the resources of the State of Kelantan, Siam, a railway has become a necessity, while the construction of a section of the Royal Siamese Trunk Railway from Singora along the coast is also under consideration. The passenger traffic alone would probably yield a profitable income, while if the line is continued into the interior of Kelantan it will greatly facilitate the development of the large mining concessions which exist there. In a recent report on railways in the Federated Malay States two lines entering Kelantan from British protected property are suggested, both to be contained within the limits of what is known as the Duff Development Concession.

LOCOMOTIVE CONSTRUCTION IN CHINA.—The building of the third of a type of Mogul locomotives has just been completed at the Tongshan works of the Imperial Railways of North China. In the construction of this particular class of locomotive an unique arrangement of fixing the cylinders on the main frames, an idea of Mr. Kidner's, by means of four large bolts, has been adopted and substituted in place of thirty smaller bolts which are invariably used in British locomotives. This arrangement is said to have the advantage over the other in the fact that the larger bolts give easier facilities for the removal of the cylinders for re-boring, or in case of breakage. The other locomotives, both of which have this bolting arrangement, have been running continuously on the line for one and three years respectively and they have given very satisfactory results.

RAILROADS, PHILIPPINE ISLANDS. — The *Engineering News* is informed that owing to the short time which has elapsed since the passage of the act of Congress, approved Feb. 6, 1905, authorizing the Government of the Philippine Islands to guarantee not to exceed 4% interest per annum on a stipulated amount of bonds issued for the construction of railroads by a private corporation or company in the Philippines, the plans in connection with the proposed railways are yet in a formative state, and no definite information as to when construction is likely to begin can be given you at this time. It is probable, however, that in a short time a prospectus will be gotten up showing the general plans for the construction of the railways, which will be given the widest possible publicity through the press, and otherwise, for the information of those interested so that they may be able to take intelligent actions when applying for franchises for the construction of a railway under the provisions of the act of Congress above mentioned.

BRITISH NORTH BORNEO RAILWAY.—The rails of this road are laid to the Penotal Gorge, which is the last of the series of gorges which have had to be negotiated to get to Tenom, the interior terminus of the line. This means that the interior of British North Borneo is now accessible, and that it can be entered without having to climb the great mountain ranges which formerly barred the way. The cutting of the railroad track through the rocky defiles of the Padas River has been a stiff piece of work, but without it the development of the interior of British North Borneo would be impossible. In the language of the Chairman of the Court of Directors of the British North Borneo Company "it is a piece of railway which will forever bear witness to the skill of our Engineer (Mr. West), upon whom it reflects great credit." It is nearly nine years ago since Mr. West left England for Borneo, and during the whole of that time he has never left his work. Time after time the former Governor of the possession said that Mr. West would never be able to reach the interior. Now the Engineer says his work is practically accomplished, and that the traffic, in spite of the destruction of an important bridge, was not only being maintained but that it was increasing. The wreck of the bridge was due to an abnormal flood.

AMERICAN LOCOMOTIVES FOR JAPAN.—The lion's share of what is announced to be the largest single foreign order for locomotives ever given in the United States, or elsewhere perhaps, has been awarded to the Baldwin Locomotive Works of Philadelphia by the Japanese Government, through its agents in New York, Messrs. Mitsui & Co., in connection with Messrs. Fraser & Co., of Japan, representing the Yokohama Bank. The entire order, which calls for immediate construction and shipment, was for 152 locomotives. Of the total number the Baldwins are to build 77, the Atlantic Equipment Company 25 and a company in Glasgow, Scotland, 50. The locomotives are said to be of a composite type which will guarantee a fair amount of speed, coupled with strength and endurance. This will permit them to be used either for conveying troop and supply trains in Corea and Manchuria or for general use on the railroads of Japan. The American bidders secured the order in competition with the manufacturers of all Europe. A supplementary order for 18 more locomotives of a high class is shortly to be awarded by the Japanese Government agents. It is estimated that the actual cost of the 102 locomotives to be constructed in America will not fall below $750,000, and with the cost of transportation added the extent of Japanese patronage in this instance will be in the neighborhood of $1,000,000. Time of construction and transportation was taken into consideration in giving the order to the builders of the United States, it is said. When the first batch of a dozen is completed it will be forwarded to the Pacific Coast by rail, and thence transported to Japan by fast steamship.

LOCOMOTIVE CONTRACTS, NEW SOUTH WALES.—A contract for locomotives has been let by the New South Wales Government to the Baldwin Locomotive Works, of Philadelphia, U. S. A. Tenders were invited throughout the world some time ago for twenty engines of the "P" class, and the twelve offers received were carefully scrutinized by the Railway Commissioners. They decided to accept the Baldwin people's tender, although another company under-quoted them to some slight extent. The price to be paid is £3900 per engine landed in Sydney, the whole lot to be delivered within twelve months. In the conditions of delivery the Baldwin tender was more favorable to the Railway Department than any of the others received. Mr. H. Howe, the manager of the Eveleigh workshops, is to be sent to America to superintend the construction, the Commissioners feeling that this is a preferable course to the appointment of an inspector on the spot.

The controversy over another locomotive contract of long standing in New South Wales has recently been revived by the receipt of an amended tender from James Martin & Co., Limited, of Gawler, South Australia. Towards the end of 1903 tenders were invited for the local manufacture of sixty heavy engines, half for passenger and half for freight traffic. Six tenders were received altogether, three from outside New South Wales and three from within. The prices quoted per engine were as follows: Beyer, Peacock & Co., £4100; unnamed German firm, £4613; James Martin & Co., Limited, £5616; Fitzroy Dock, £5200; Clyde Engineering Company, Limited, £6025; G. & C. Hoskins, Limited, £6083. The first three did not contemplate manufacture in the State and were consequently thrown out as informal. Then arose the question of the acceptance or otherwise of one of the local tenders, or alternatively the manufacture of the engines or some of them at the Government Railway Workshops. A committee of experts to whom the matter was submitted declared against the Fitzroy works, a Government institution, as quite unsuited for the purpose, and the field of selection was consequently narrowed still further. It was intimated that before such work could be undertaken at the railway workshops a large sum would need to be spent in additional plant, besides which the estimate of the railway officials was much higher than that of the Fitzroy Dock. The acceptance of the Clyde Engineering Co.'s tender was pressed upon the Government, but the Premier considered their price too high as compared with the others, and although they offered to reduce it somewhat, no business resulted in this direction. Then came the amended tender from the Gawler company, and the consequent reopening of the whole question. The new tender was £315,000, or £5250 per engine, and the Premier inquired if Messrs. Martin were prepared to make the locomotives in New South Wales on these terms. In an interview with the Minister on January 16, Mr. J. F. Martin said they would do so if the Government would make it 100 engines instead of 60. Mr. Martin was asked to put his fresh offer in writing, so that its details might be fully examined.

ELECTRIC LIGHTING, TRACTION, POWER, ETC.

MILITARY TELEPHONE, HONGKONG.—The military telephone from Kowloon and Stonecutter's Island to Hongkong has been reconstructed.

has undertaken to relieve the world, and, even assuming that her statesmen are blind and ignorant enough to endeavor to take up the policy of conquest where Russia laid it down, it is one of the most obviously impossible of all historic eventualities that they should be able to carry such a design into effect.

It has been hastily concluded by outside observers, as it has been confidently asserted by Russian expansionists like Prince Oukhtomsky, that there was a distinct affinity between the Russian and the Asiatic races whose territory he annexed. Nothing could, on the whole, be farther from the truth. On the competent testimony of Mr. Weale it has been asserted that Russia's Oriental destiny, so far from allowing her to understand and greet as long-lost brothers the sturdy-bodied men of Manchuria, makes her at a loss to understand them at all. In the judgment of this careful observer we are confronted by the undeniable fact that the Slav is today more hated than any other white man in the world by the Chinese.

In discussing the future of Manchuria, the fact should be kept steadily in mind that, as Mr. Weale puts it, "the blessed stream of Anglo-Saxon ideas and ideals has been rapidly flowing into every hole and corner of the country and saturating them with a moisture which is as the dew from heaven." Manchuria, from the very fact that the possibility of Slav misrule has been brought so close, has been far more receptive of the new ideas than almost any other part of China. The question is therefore a highly practical one, what will Japanese success do for that very considerable part of the earth's surface comprehended under the name of the three Eastern provinces of China? To get an adequate conception of the extent of this territory we may borrow a definition from Consul Davidson, to the effect that in latitude it occupies a position corresponding to the territory extending from Washington to Hopedale, North Labrador. The climate differs somewhat from the country thus bounded, since in Southern Manchuria it is colder than at Washington or London, but in central Manchuria the climate is not unlike that of the Dakotas, and, though there is in Northern Manchuria a winter of Arctic severity, the snowfall scarcely exceeds that of the South Dakota plains. To produce a Manchuria out of home material we should have to take for the most southerly part, including the territory leased to Russia, to which Japan will undoubtedly succeed, 10,000 square miles of the rocky land of Vermont. For the great garden extending from the Liaotung Peninsula to Harbin, 500 miles to the north, the rich grain belt known as the Red River Valley would form a substitute, and for that portion of Manchuria extending from Harbin 450 miles to the northern frontier, a counterpart might be found in the grassy plains of Western Nebraska. These characteristics belong to the eastern portion of this great territory; the western half is mountainous, and with its heavy virgin forests resembles the pine-clad hill districts of Oregon.

It must be obvious that the future of Manchuria must rest with colonists from the northern provinces of China, and that, for its proper development, there must be a reversion to the policy of the Emperor Tao-Kwang in putting up the public lands for sale. The true barriers for China to interpose between herself and her northern neighbor are those of men, renewed and increased in numbers and strength year by year. There can be no question that it is the false policy of seclusion and exclusion adhered to by the Chinese Goverment in Manchuria which is largely responsible for the Russian movement to the south. The only province of Manchuria which has any considerable population is the southern one—Shengking—it is now the turn of the two northern provinces of Kirin and Heilungchiang to invite settlers. As to the details of Chinese administration, which must be remodeled to make this possible, it is hardly time to speak, but as we are on the very threshold of the opening of Manchuria to the trade of the world it may be well to recall the fact that there is very little known of the possibilities of the northern two-thirds of a territory which has, in itself, the making of an empire. When the conditions of peace come up for discussion the free navigation of the Amur will be recognized as hardly second in importance to the free navigation of the Danube, and the surrender of the rights which Russia possesses by treaty with China, giving her a monopoly of navigation on the greatest of the affluents of the Amur—the Sungari—will be found to be indispensable. These are questions of whose importance Japan, at least, has a thorough understanding, and it may be taken for granted that no arrangement will be made with Russia which does not open to the world the trade of at least 300,000 square miles of the temperate zone which, in the event of Russian success, would have been absolutely and irrevocably closed to all commerce but that of the subjects of the Czar.

CHINESE COAL DEVELOPMENTS.

With the completion of the railway to Taokou, the coal deposits of Shansi and Honan will find an outlet to the coast. Since the work of Baron Von Richthofen some thirty years ago, it has been well known that both anthracite and bituminous coal occurred in these provinces. Recently the Peking Syndicate has been engaged in their development.

The new railway line, in connection with the Wei River and the Grand Canal, will make it possible to deliver the coal to Tien-Tsin at prices much below present charges for imported fuel. It is expected that the freight on railway and canal will amount to $2.45 per ton, while the cost of mining is estimated at from 25 to 60 cents. The present price for good European coal, on the coast, ranges from $7.25 to $9.75 per ton. The Peking-Hangkow Railway, now being constructed through the coal fields, will shortly afford a second outlet by means of the Yangtse River. When the necessary connections are completed, coal can be delivered to Nanking for about $2.45 per ton, and to Shanghai, which imports about one million tons annually, for very little more.

The known coal fields of China are estimated to extend over 400,000 square miles. So far, development has been altogether for local trade. The Kaiping, which extends for 20 miles along the Tien-Tsin-Newchwang Railway, is on the whole, the best developed. It is said that in this field there are sixty million tons in sight, and two hundred and sixty-five million tons more are estimated to be present, but undeveloped.

The Shansi deposits cover nearly 14,000 square miles. The Honan field has an area of 21,700 square miles. Since, however, but little accurate surveying has been done in China, these estimates may well be received with some reserve.

In China the winters are severe, and if cheap coal is available people will gladly buy it. At present only the wealthy can afford coal. At Po-tou, 468 miles from Wei Hai, anthracite coal from the Chinghwa mines is sold for $24.50 per ton, whereas with improved transport it should be sold for one-fifth of that price, at a profit of about $2.45 per ton. The numerous navigable water-ways connecting with the Wei River and the Grand Canal will afford cheap transportation to a large, densely populated area.

Shansi is said to be rich in iron ore, which occurs in the Coal Measures, and the local iron industry has also been developed. It seems likely that with the development of the fields and facilities of transportation, manufacturing industries of various kinds will be developed.

ELECTRICAL INVASION OF THE ORIENT.

With the inauguration of the electric railroad and light system Manila can boast of the finest, most modern and complete enterprise of the kind in the whole Far East, and among the very best in the world.

The American capitalists who undertook the improvement seemed to have calculated well in their preliminary summing up of the possibilities of the field for profitable investment. All lines thus far opened are doing a most encouraging business, with receipts growing daily. It is safe to predict that every line composing the big system will pay from the time it is opened.

Indications are that in the department of light and power will rest immense profits which will overshadow by a large per cent the transportation returns. The Company is preparing to invade every part of this field, promising economical returns to the consumer and good profits to itself.

And in this connection it might be mentioned that just at the present time an electrical wave is sweeping over the whole Orient. Everywhere street railway lines and lighting and power plants are either being installed or are under serious consideration. The popularity of electricity in manufacturing and industries of all kinds is leaving all other motive powers far in the rear. Throughout Japan, in spite of the war, electrical installations are supplanting steam and other powers with wonderful rapidity. China has taken down with the fever, which has also invaded Indo-China, the Federated Malay States, Siam, the Straits Settlements, and India. It is bewildering to even attempt to keep track of the projected enterprises and those under way.

This, to our notion, is the surest sign of the commercial and industrial awakening of the Orient. With this great awakening along electrical lines is developing a market for modern machinery that can not help but promise an immense future. It carries with it demands for machinery of every description, so those who are alive to the opportunities and come into the virgin but inexhaustible market, will be the ones to get the cream of the business. During the last three years a few of the leading manufacturers of electrical machinery and equipment have gained a foothold and are doing a profitable business. Other manufacturers are figuring on entering the competition, so it is safe to predict that at the end of two more years every electrical manufacturing establishment of any consequence in the world will be on the ground for a share of the business. And if the present rapid growth of demand is any indication of the future, there will be plenty of business for everybody.

This issue of THE FAR EASTERN REVIEW contains a description of the electric railroad and light system of Manila, with numerous valuable illustrations for those interested in construction work. The illustrations give a most comprehensive idea of the magnitude and modern completeness of the system, and show that Messrs. J. G. White & Co., Inc., have installed for the Manila Electric Railroad and Light Company a plant that will meet all demands of the city for years to come. Thus far the Company has spent in the neighborhood of $4,000,000 gold on the improvement, and there is still much work to be done before the system can be called complete.

Manila has every reason to be proud of the system, and other cities of the Orient contemplating the installation of a similar plant would do well to investigate here ere they look elsewhere for pointers.

TRADE LITERATURE RECEIVED.

STEAM TURBINES.—De Laval Steam Turbine Company, New York.

A handsome illustrated presentation of the steam turbine under the De Laval patents is offered here.

ELECTRIC RAILWAY AND LIGHTING SUPPLIES.—Elmer P. Morris Company, New York City.

A general illustrated catalogue of a big line of wrought iron and steel tubular poles and pole brackets for electric railways, electric lighting, telegraph and telephone service, and the complete line of material used in the construction and operation of electric railways.

HEAVY MACHINERY.—National Drill and Manufacturing Company, Chicago, Ill.

A series of handsomely illustrated catalogues and booklets covering the road machinery, well drilling machinery, earth handling machinery, rock crushing, and other machinery manufactured by this company.

FAR EASTERN ENGINEERING AND CONSTRUCTION NEWS

PERSONAL

Mr. R. W. Hawken has joined the Pahang (F. M. S.) Public Works Department as Assistant Engineer.

Mr. F. E. Jago has left the employ of Messrs. Boustead & Co., Singapore, to fill a post on the East Borneo oil fields.

Messrs. Caldbeck, Macgregor & Co. have opened a branch office of their firm in Penang under the management of Mr. A. W. Beauclerk.

Mr. James S. Smyth's appointment to the managership of the Siamese Tramway Company, Limited, Bangkok, has been formally announced.

Mr. P. E. Wise, of the Duff (Kelantan) Syndicate, accompanied by Mrs. Wise, sailed from Singapore about the first of the present month for England on sick leave.

Mr. W. G. Bridger, formerly with Messrs. Butterfield & Swire of Hongkong, has relieved Mr. Dale as Engineer in Charge of the China-Borneo Company's Slipway.

Great Britain now has two new consular representatives in the Far East, Ambrose John Sundius, Esq., at Wuhu, and William Pollock Ker, Esq., at Nanking.

Herbert Spearing, Executive Engineer, First Grade, Larut and Matang, Public Works Department, F. M. S., has been retired from the service of the State of Perak.

Mr. Li Ching-fan, the eldest (adopted) son of the late Li Hung-Chang, has been appointed by the Peking Government to the office of Assistant Director of Railways.

Messrs. F. Nestle Butterworth, British North Borneo, and Thomas Groves, A. M. I. Mech. E., Federated Malay States, have been elected fellows of the (British) Royal Colonial Institute

Mr. A. E. Harris, of the Philippine Bureau of Engineering, who is in a precarious condition from amoebic dysentery as a result of hard field service, has been transferred to the United States.

John Edward Foley, Esq., Traffic Manager of the Imperial Railways of North China, has been decorated by the King of Italy in recognition of valuable services rendered by him to His Majesty.

Allis-Chalmers Company of Milwaukee, Wis., will be represented hereafter in West Australia by Mr. F. R. Perrot, of Perth, and in New Zealand by the firm of John Chambers & Son, Limited, of Auckland.

During the absence on leave of the Hon F. G. Penney, the duties of Colonial Secretary at Singapore will be undertaken by Mr. E. L. Brockman, one of the most valued public servants in Great Britain's Colonial Service.

The deputation to England of Mr. A. Pilkington, Locomotive Superintendent, Madras Railway, in connection with the new type of heavier engines to be introduced on the line, has been sanctioned by the Indian Government.

Messrs. H H. Bodemeyer & Co., Architects and Civil Engineers, have just opened an office at Chefoo, under the special supervision of Mr. A. Artz, Architect and Civil Engineer, for general architectural and engineering work.

Mr. W. E. Gray, an American, formerly General Manager of the Canton-Hankow Railway, has been appointed adviser to the authorities in Kwangtung, Kwangsi, and Fuhkien Provinces, China, in connection with railway and mining affairs.

Mr. T. N. Ashmead, the new Engineer-in-Chief of the American Development Company, China, has arrived at his post from the United States and assumed his duties in connection with the construction of the Canton and Hankow Railway.

The European staff at the Kowloon Docks recently presented Mr. A. C Squair with a handsome gold watch as a mark of their esteem on the occasion of his leaving to take up an important position with the firm of Messrs. Tait & Co., in Formosa. Mr. Squair was in the service of the Dock Company five years.

The Chinese Government has granted the Fourth Class of the Order of the Double Dragon to Messrs. Cox, Yingkou, Tuckey, and V. Engstrom, all engineers, for their services to the Imperial Railways of North China, outside the wall, and to Mr C. Kinder, C. M. G., already a member of the order, advancement comes to a higher grade.

Major James F. Case, City Engineer of Manila, P. I., has been officially notified of his appointment as Chief Engineer-in-Charge of the new Water and Sewer Systems of Manila. His chief assistants will be Mr. F. O. Ingalls and Mr. S. M. Swaab, the latter being until recently in charge of the Filtration Bureau of the Philadelphia (Pa.) Water Supply.

Mr. Ragsdale, American Consul-General at Tientsin, has been transferred to Dawson City, Alaska, on promotion. Mr. Morgan, Consul at Dalny, goes to the American Legation at Seoul, Korea, while Mr. Rodgers, the new Consul-General at Shanghai, will not take over his post for several months, thus leaving Mr. Davidson in temporary charge. The latter gentleman will take over the post at Dalny when circumstances permit. Mr. Fletcher, Second Secretary of the Legation at Peking, is transferred to Lisbon, while Mr. Rockhill, the new American Minister at Peking, is expected to arrive at his post the latter part of the current month.

RAILWAYS, SUPPLIES, ETC.

TIENTSIN-CHINKIANG RAILWAY.—A section of this line has been completed.

SEOUL-WIJU RAILWAY, KOREA.—This line, it is reported, will be completed during the present month.

LU HAN RAILWAY, CHINA.—This line is open now as far as Hsin-Hsiang, two days' journey from Peking, the first day's trip being broken at Cheng-tu.

RAILWAY COLLEGE, WUCHANG.—Viceroys Hsi Liang and Chang Chitung have asked the Peking Government for the establishment of a railway college in Wuchang.

RAILWAY TRAFFIC TO MUKDEN.—Repairs to the railway bridge across the Hun River have been completed by the Japanese and traffic to Mukden has been resumed.

HARDWOOD SLEEPERS, INDIA.—The South Indian Railway Company, Limited, has just received tenders for the supply, between July 1st and December 31st, of 17,000 hardwood sleepers.

SHANGHAI-NANKING RAILWAY ADMINISTRATION.—The offices of this bureau have been removed to the premises lately vacated by the East Asiatic Company on the Bund, Shanghai.

HEKIANG-CANTON LINE, CHINA.—Chinese students in Japan have expressed themselves as opposed to the American demand in connection with the building of the Chekiang-Canton Railway.

TRANSSIBERIAN LINE.—At present twenty-four military trains are said to be running daily on the Siberian Railway, and it is announced by the Russian Government that this number will be increased in the near future.

PEKING-KALGAN ROAD.—All survey work in this line of railway is about to be commenced under the direction of a Chinese student who has just returned home from the United States where he was educated in railroad engineering and construction.

EAST INDIAN RAILWAY SUPPLIES.—An appropriation for the supply of 300,000 "dog" spikes for the Ondal-Synthia Branch of the East Indian Railway has been sanctioned at a cost of about Rs. 16,900 to be met out of the budget grant for 1905-06.

AMERICAN LOCOMOTIVES IN THE ORIENT.—From January 1st to November 30th, 1904, Japan took ninety locomotives, as against twenty-seven in 1903 and thirty-two in 1901. Twelve locomotives were shipped to China in 1904, an increase of five over 1903 and ten over 1902.

CIRCUM-BAIKAL RAILWAY, SIBERIA.—The work on the Circum-Baikal Railway was so scamped, it is reported, that it is impossible to open it to regular passenger traffic. The tunnels have large cracks in them, the wooden bridges are unsafe, and all the work is more or less defective.

KOWLOON-CANTON RAILWAY, CHINA.—Sir Matthew Nathan, Governor of Hongkong, whose interest in this proposed line is well known, continues to exert himself on behalf of the scheme, and, according to *The South China Morning Post*, there are now prospects of something definite taking shape owing to the Chinese cooperation in the matter.

BIG INDIAN CONTRACT.—Tenders have just been invited by the Indian Government for the supply of 20,000 tons of rails and a large number of locomotives for the purpose of both heavy and light traffic. Under the new regulations every effort will be employed so that the contracts shall go to British concerns in preference to foreigners, who, until last year, were often successful in securing Indian orders, or the shipment of the material.

RAILWAY BUILDING, KOREA.—It is calculated that when the entire trunk railway now building in Korea is completed, the cost will foot up to about -Y-60,000,000 and that this sum will be increased to -Y-75,000,000 when the cost of building the Gensan branch is added. The money so invested will have to remain locked up for some time to come, as the road will not become a paying concern at once. As it is, that part of the road already open for traffic is causing the Seoul-Fusan Railway Company a daily loss of -Y-500, which means a deficit of -Y-180,000 per annum.

RAILWAY TO KALGAN, CHINA.—The long-talked-of railway from Peking to Kalgan, or Chang Chaik'ou, seems to be about to be realized. The Viceroy of the Province of Chihli has decided to appropriate surplus funds from the Tientsin-Shanhaikwan Railway Administration, and apply these funds for the expenses of this undertaking, and has appointed a deputy, Mr. Chan T'ien Yu, to act as Manager of the proposed line. This railway will tap the wealth of the high Mongolian uplands that lie beyond the Great Wall of China. From this point branch lines will be projected leading across the great desert to Mai-mai-ch'en and finally to Ili.

MANCHURIAN RAILWAY.—Native Japanese papers state that the officials of the Russo-Japanese Bank believe it would be better to leave the East Japanese Railway in Japanese hands after the war than to place it under the combined control of several States. This idea is largely based on the conviction that the railway can not succeed in any hands except those of the holders of Port Arthur and Dalny. On the other hand there seems to be some doubt whether Japan wants the property. From a commercial standpoint the railway is said to be a failure and the suggestion that it be sold to the Chinese Government also seems to echo the Peking Government's protestation.

GERMAN PROJECTS, NORTH CHINA.—In connection with the construction of the proposed Tientsin-Tsinanfu Railway, the German Minister at Peking is said to have communicated with the Chinese authorities urging them to alter the "preliminary contract" for a final one and to sign it. This the Government refuses to do, claiming that it could not be done without first obtaining consent from the Anglo-German Company. As the line will reach into Chihli, the matter has also been referred to the Viceroy of that Province. That official has not been favorable to the project of the line. Owing to its relation to the Shanhaikuan-Tientsin Railways, the British are said to be in strong opposition also.

INSULAR SYSTEM, PHILIPPINES.—In a recent interview with Mr. Taft, the American Secretary of War, at Washington, Mr. James J. Hill, the prominent railway and Transpacific steamship magnate, is reported to have said that it would be a fatal error to build the railroads of the Philippine Islands of any other than the standard gauge of the world, or 4 feet, 8.5 inches. The days of the narrow-gauge lines have gone, said Mr. Hill, except for temporary use or local industrial service. He had never favored narrow-gauge lines for the Philippines and as an example of their impracticability he cited the case of Japan, where the standard-gauge tracks are rapidly being adopted. The transportation king told the Secretary that he had every faith in the financial success of the Philippine railroads.

PHILIPPINE RAILROADS.—It has been decided at Washington that the Secretary of War, through the Bureau of Insular Affairs, will call for proposals from capitalists and companies for the building of a railway system or parts thereof in the Philippine Islands. The bids must include a statement of the probable expenditure to be made by the bidder and the time in which the bidder will finish the work for which he contracts. The question of gauge seems yet to be settled. Secretary Taft wants greater mileage than has been contemplated. He says that conditions in the Philippines and the outlook for agriculture, with the lack of good roads and beasts of burden, should persuade capital to build lines all over the Islands. He believes a comprehensive and complete system would pay handsomely.

SINGAPORE-TO-PENANG PROJECT.—The Malacca Railway is reported to be progressing by leaps and bounds. Only last June was the first sod cut and now the rails are laid and a construction train is running to the 7th mile while the earthwork is practically complete up to the 10th mile—the end of the first section. Of course Malacca being pretty flat, there are no serious engineering difficulties in the way, but as part of the country traversed is at times under 7 or 8 feet of water the task of building a permanent way is not as easy as it looks. The other section, which stretches on to Tampin on the borders of Negri Sembilan, is also progressing, and there is every prospect of through communication to Penang before the year is out. The trunk line which is marching on to Singapore has already crossed the Gemas and penetrated 40 miles into the Sultan's territory, so the day when it will be possible to journey by rail from Singapore to Penang, with the exception of two narrow straits, is not so far distant after all.

AMERICAN RAILWAYS AND PACIFIC TRADE.—A through line from the Atlantic to the Pacific, and thence to Asia, directly under the New York Central management, will be a fact within a few weeks, according to Wall-st. report. This is to be accomplished by the purchase of the Great Northern Railway by the Chicago and Northwestern. The bankers for the insiders in the Northwestern deal say that Harriman, in behalf of the Union Pacific, has agreed to dispose of the Great Northern stock that will come to him through the dissolution of the Northern Securities Company to a syndicate representing the Chicago and Northwestern, at $250 a share. Hill and Morgan, it is reported, have agreed also to turn their Great Northern stock over to this syndicate. This gives it absolute control. The mail tracks of this extended New York system will be no less than 18,000 miles long, not counting the numerous smaller systems tributary to it. The Great Northern Steamship Company, which belongs to the Great Northern Railroad, has valuable terminals on both sides of the Pacific.

PROPOSED CANTON-WHAMPOA RAILWAY.—Chinese newspapers claim that this project is not, as rumor has had it, an enterprise of the American China Development Company, but exclusively a Chinese undertaking. A scheme has been prepared for the building of a railway from Canton to Amoy by a corporation described as the Imperial Chinese Railway Company. It is desired to build the Canton-Whampoa section first, and the route mapped out was for the line to start from Sha-ho-han, outside the East Gate of Canton, passing through Loonghan and proceeding along the bund to the river. It is proposed to lay a single track first, but in the acquisition of land provision was to be made for a double track with a view to the ultimate connection of the line with the trunk railway to connect Canton with Hankow. The proposal was laid before the Viceroy and Governor of the Province, but the local

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June 1905

Sheng Sun Wy (Sheng Hsuan-huai), a Chinese newspaper reported that Imperial Commissioner of Railways, Sheng would soon be replaced by Chang Yuk Nan.

Techow-Takao Line, an agreement for this railway would soon be signed.

Peking-Kalgan Railway, Chinese engineer Chan Tien-yu had started the survey for this line.

Railway Extension-Amoy, the government was considering construction of a railway between Amoy and Foochow.

Railway Equipment for Pe-han Line, a large consignment of railway equipment from Belgium had arrived in Tientsin by steamer.

Sleeping Car Train, a sleeping car train would shortly arrive for through trains on the Pe-Han line.

Peking-Kalgan Line, this railway was to be built with profits from the Peking-Newchwang Railway after shareholders had been paid.

Peking-Kalgan Railway Officials, Cheng Ta-cheng and Lu Hsi-kwei had been appointed directors of this railway.

Railway Concession, an American syndicate was attempting to gain a concession to build a railway from Hankow to the border of Kiangsi province.

Proposed Sin Min-fu to Mukden Railway, the Japanese were negotiating to build this railway before the heavy rains set in.

Railway in Formosa, the Japanese had taken up and relayed the railway previously built by the Chinese Governor Lao 1885-1891. They then (1901) built a branch to connect Taipei with Tamsui and also continued the main line southwards. Simultaneously work began in Takow to build the line northwards to Tainan. At the beginning of 1905 there were 100 miles of track south from Keelung while the southern section was 97 miles in length. Work is continuing and by May a locomotive had reached Taichu leaving only 9 miles between the sections. The completion would however take about 3 years because of need for several tunnels and bridges.

Shanghai-Nanking Railway, reported that Sheng Kung Pao had performed a ceremony of “turning the first sod” of this railway almost one year late. Since October 1904 the British China Corporation which had taken over the line had completed 56½ miles of permanent way ready for track laying, taking the line to Soochow. It was hoped that by October trains would be running.

Railway Profits in China, a report about the accounts and profits of the Imperial Railways of North China line from Tientsin to Shanhaikwan.

Anglo-German Tientsin-Chinkiang Trunk Railway, the contract between the two organizations had been finalized and would be presented to the Chinese Government. The preliminary contracts had provided for a loan of £7,400,000 of which ⅔ was to be German and ⅓ British. The final contracts and loans would increase the total loan to £10 million.

Ching-Han Railway, the line was reportedly nearing completion. The article also contains brief description of the route.

July 1905

Railway Concession- Chekiang-Kwangtung, a Mr Bash had proposed this concession but was opposed by Hangchow gentry.

Branch Lines for China - Shantung Railway, several branch lines had been proposed, one from Chinanfu to Chiningcho, one from Tsingtau to Suchien in Kiangsu and one to Chihli.

Peking-Chanchakao Line, the construction of this line had commenced, expenditure was expected to be 800,000 Taels.

Peking-Kalgan Line, the Russians were not satisfied with Chinese building this line. They wished to build a line from Kulum to Khalkha to connect with the Chinese line.
Canton-Hankow Railway Concession, Viceroy Chang Chih Tung advised that there was a good chance the concession for this railway could revert to the Chinese Government with American Government consent.
Proposed Canton-Hong Kong Railway the Governor confirmed that negotiations were in progress with Peking for the joint working of this line up to China/Hong Kong border.
Canton-Whampoa Line, the United States Minister at Peking had lodged an objection to this railway owing to its being detrimental to the interests of the Canton-Hankow line. The Viceroy at Canton had been asked to furnish to Peking full details of the proposed line. The Viceroy had replied saying that Peking should not permit foreign interference with the building of the line by Chinese interests.
Formosa Railway, a repeat of the June 1905 report (see above)

August 1905
Hankow-Canton Line, Report that this line might be restored to Chinese ownership.
French Concession - Kwansi Province A report that France was trying to secure a concession for a line between Lung-Chow and Kwei-Lin.

September 1905
Shanghai-Nanking Line, Four large passenger locomotives and two smaller construction locomotives for this railway had arrived at Woosung.
Kalgan Line, The Chinese had commenced construction of this line. A French firm had won a contract for the supply of rails.
China Railways & Belgium, an additional loan of £508,000 from Belgian capitalists had been arranged.
Kwangchow (Canton) –Hong Kong Railway The Viceroy had telegraphed Peking objecting to the grant of a concession for this line to foreigners. The money for the line would have to be found locally.
Yunnan Railway, the French Consul at Mengtsz had had a request for the employment of French engineers on Chinese Government railways in Yunnan and Szechuan refused by the Viceroy. The French had then demanded that no other foreign nationalities should be engaged.
Tientsin-Chinkiang Railway, Peking had asked for the Anglo-German agreement for building this railway to be cancelled owing to local opposition in Shantung province. The British Minister had replied saying this was “impossible” whilst the German replied that his government was doing its best to suppress this opposition through the Governor of Tsingtao.
Railway Concessions Granted by China, a list of new concessions granted:

(a) To Germany & England from Tientsin to Chiukiang 600m. Capital £7,400,000.Branch lines:Tichu-Chenting, Chinting-Kaifeng
(b) To England from Shanghai to Kiangning 262 m. Capital £1000,000.
(c) To England from Suchau to Hangchow and Ningpo 1677m.
(d) To England from Canton to Kowloon 90m.
(e) To England from Puku through Anhui to Hsinyang 333m.
(f) To England from Tsechau to Puku.
(g) To France from Annam to Mengtze & Yunnan.
(h) To England one from Tengyuen to Burma and one from Shunning to Burma.

Railways in China, the American Consul at Tientsin had submitted to his government a schedule

of what he believed were all railways constructed and projected in China. The list is included in the report.
Railway in Formosa the American Consul at Tamsui gives an up to date report of the status of the line which still is divided into northern and southern sections by a gap about 9 miles. There are also small 19½ inch gauge tramways reaching out from the main line at various places. Coolies provide the motive power for these tramways.
Imperial Chinese Railways, reports net profit for the half year as £325,000.

October 1905
Shanghai-Nanking Railway, construction work on this line had commenced.
Canton-Kowloon Railway , the Viceroy and British Consul were negotiating for the construction of the line. The Chinese would build the section through Chinese territory.
Canton-Hankow Railway, Negotiation were in hand in Washington for handing over the line. The Hanyang iron works were operating night and day to produce rails and other railway material.
Peking-Changkakou Line, an order for 5000 French rails had been placed.
Kwongchow Wan Railway, a Chinese merchant had applied to build a railway, together with foreign merchants, a railway on the frontier. It had been refused for fear of endless trouble if foreign capital was used.
Sunning Railway, Chan Yi Ki, a promoter of this railway had returned from USA with funds for building the railway raised from overseas Sunning people.
Yunnan-Szechuan Railway, it had been decided to build this railway with Chinese funds.
Chinese Students in Japan, 200 Chinese students studying railway engineering in Japan had run out of funds. Viceroy Chang Chih Tung had sent $20,000 for their expenses.

November 1905
Canton-Hankow Rialway, Viceroy Chang Chih-tung of Canton had reportedly raised a British loan of $6,750,000 to be paid to J.P. Morgan's USA syndicate for restoration of the railway to China. The railway would then be built with half the engineers being British and the other half probably Japanese. The security for the 4½% interest p.a. loan was to be opium revenues from Hupeh, Hunnan and Kwangtung.
Concessions in China, an editorial discussion on recent concessions granted by the Chinese Government to the Germans and to the British represented by the British and Chinese Corporation. The article discusses the political situation with special reference to the Tientsin-Chinkiang and Shanghai-Nanking railway concessions.
Railways in South China, a newspaper correspondent in Canton reported that the southern Chinese were jubilant that the American concession for the Canton-Hankow line had been wrested back and given to "safe" Chinese hands even though construction work was now to be postponed indefinitely.The Cantonese were now turning their attention to the 'French" Yunnan railway with appeals that this railway should be jointly undertaken by Chinese and French.
Kowloon-Canton Railway, reported that British engineers would make the survey.
Peking-Kalgan Railway, Tenders had been invited for the first section of line from Fengtai to Nankou.
Chinese Eastern Railway, Japanese troops had formed a garrison for the protection of the railway.

Another Imperial Railway, Because of the Empress Dowager's frequent visits to I Ho Yuan it had been decided to connect this place by rail to Peking.
Foreign Railway Shops Barred, No foreign railway shops were to be allowed on stations along the Chentow-Hsihchiachuang Railway. Those already existing would have to close.
Peking-Hankow Railway, according to local Chinese newspapers the Peking-Hankow line new bridge across the Yellow River would open that month.
Lukokiu-Hankow Line, this line was nearing completion but owing to the magnitude of work for bridging the Whang Ho nothing would be done on this score until the proposed site had been inspected by senior officials.
Anhui-Kiangsi Railway, it had been suggested that the money for building this railway should be raised by holding lotteries but there was a fear that the winning tickets might fall into the hands of foreigners.
Formosan Railway, a telegram reported that a 14 mile stretch of track across wild country had been completed in Giran district.
Tientsin-Chikiang Railway, the Chinese had referred a memorial cancelling the concession for this railway to the British Minister. The latter had replied that since it was a joint Anglo-German agreement the Chinese would have to refer it to the Germans. If the Germans agreed, they,(Britain) would have no objections.
Railways in Fukien, the proposed Amoy-Foochow railway would require capital of 8,000,000 Taels which would be supplied by Chinese and not by certain French capitalists who were trying to get the concession.
Development of Whampoa, H.E. Chang Yat Shi had travelled to the Straits Settlements to try to raise funds for developing Whampoa and building a railway thereto.
China and the Manchurian Railway, Manchurian officials had petitioned the throne to the effect that the Chinese Eastern Railway was the backbone of the three eastern provinces of Manchuria and therefore the railway should be restored to Chinese ownership and control. They had suggested raising a loan for this purpose.

December 1905
Soochow-Hangchow-Ningpo Railway, the Peking Government requested the British Minister to fix a date for the cancellation of the concession for this railway.
Peking-Kalgan Line, The Chief Engineer had assessed the cost of building this railway.
Projected Chengtefu-Peking Line, a survey was being conducted for this line by the military governor.
Annam Railway Extension, reported that the Chinese Government had approved a French concession to extend this line to the Yunnan border.
Sintefu-Peking Route, a survey was being conducted for a possible line along this route.
China Trunk Line, British newspapers reported that China was planning a trunk line connecting Peking with Canton. The Canton-Hankow line would form part of this route.
French and China Railways, the French Minister was urging the Chinese Government to grant France concessions at least to the extent that they had been granted to British subjects. The Viceroy at Canton was opposed to the scheme for the Canton-Kuangchouwan Railway which involved French interests.
Shanghai-Nanking Railway, the first 12 miles of this railway from Woosung to Naziang had been completed.

Peking-Hankow Railway, the journey from Peking to Hankow on the just completed railway takes 36 hours. The line previously known as the Lu-Han line (Luknowchiao-Hankow) but would henceforth be called the Ching-Han line, “Ching” meaning “capital”.
Hsimintun-Mukden Railway, senior officials were pushing for work to resume on constructing this line, following interruptions due to war.
Chinese Eastern Railway, the railway from Changchung to Port Arthur, recently taken over by the Japanese was losing ¥100,000 per month.
Shantung Railway, the offices and the line from Tsingtao to Chinan had been handed over by the Germans to the Chinese. The line was completed by the Germans in 1903. The line was doing well.
British and Chinese Corporation, a prominent Chinese newspaper stated that this corporation had not breached any conditions of their concession and it was therefore not possible to cancel the concession and give it to Kiangsu people. It reminded agitators that China had the right to redeem the railway after 12 years and they should not be led by blind patriotism and make wild statements or take actions which would injure their cause.

January 1906
Construction of the Canton-Sam Shui Branch of the Canton-Hankow Railway, by C.W.Mead C.E., late Engineer-in-Chief of the Canton-Hankow Railway. A 3½ page article describing mainly the construction of the Canton-Samshui branch of the Canton-Hankow Railway. This branch had been in operation for about two years whilst the construction of the main line had made very little progress because of shortage of funds. The author also states that another branch line from Ping Hsiang coal mines to Chu Chou was also now in operation. The rolling stock is described as all American with eight second-hand locomotives (ex- Manhattan Elevated Railroad) having been acquired for the construction and early operation of the Canton-Samshui line. Passenger cars had been made by converting boxcars. 11 photographs of Fatshan Station and construction scenes.
Antung-Mukden Railway, this Japanese built railway had been completed.
Canton-Whampoa Railway, the scheme for this line had been sanctioned by the Throne.
Kiangsi-Kuangtung Railway, Chinese officials had called for a scheme to be put forward.
Canton-Amoy Railway, the first section of this railway is reported to be starting from the East Gate of the city to Whampoa.
Swatow-Chinchow Line, this line would probably open by spring as only a small portion remained unfinished.
Proposed Kongmun-Sungsuihow Railway, there was a proposal to build this line to connect with the Sunning Railway.
Canton-Hankow Railway, it had been decided that the provinces through which this passed would build their own sections of the line. Hupeh province had however made no effort.
Imperial Chinese railway, Sheng Kung Pao had ordered that the Shanghai offices of the Imperial Chinese Railway Administration for the Peking-Hankow line should be abolished now that the offices had been established at Peking. Tang Shao-Yih had been appointed Director-General.
Canton-Amoy Railway, a scheme and prospectus for this line had been submitted for approval.
Railroads in China, the American Vice-Consul at Hangchow had written to Washington about the many proposed railways for China.

New Shansi Railway, the proposed railway from Tatung to Taiyuan and then south to Puchou was being considered by the Government but there were doubts about adequate funding.
Peking Syndicate's Concession, the London Times had announced the terms of sale of this railway to the Chinese Government. The syndicate would still work the line for the Government. There is a brief description of the line which was losing money on account of insufficient traffic.

February 1906
Railway Concessions, the Chinese Government had notified foreign ministers that all railway concessions would be cancelled as they expired.
Ching-Han (Lu-Han) Railway, a new branch of this line to Anyang in Honan is to be built.
Canton Hankow Line, a report that the Viceroy's proposal to levy new taxes for building this line was causing great excitement amongst merchants and gentry.
Anhui Railways, Lord Li, Director of Anhui Railways had made a request to the British for a piece of land within the Wuhu Settlement. The British Consul had refused to consider it.
Swatow-Chinchow Line, a repeat of the January 1906 report.
Home Made Rails for China, the Peking Government had directed that all railways obtain their rails and other iron works from Chinese sources. There was a wish to stop foreigners from profiting from this.
Tientsin-Chinkiang Railway, officials of Shantung, Chihli and Kiangsu, who had been agitating against the Anglo-German concession had been advised it was impossible to cancel the concession. There was a suggestion that they could defeat the scheme however by getting the funds together quickly and building their own railway before the Germans could do so.
Peking Syndicate A report that the Chinse government had purchased the syndicate's Taokou-Chinghua railway by way of a "Honan" loan of £700,000 at 5% interest p.a.

March 1906
Manchurian Railways, the question of changing the narrow Japanese gauge on the Chinese Eastern Railway lines taken over by Japan after the war was being discussed.
Tientsin-Chinkiang Railway, the officials of the affected provinces were still pushing for cancellation of agreements, especially in relation to the German portion of the line.
Railways in Fukien, the first part from Amoy to Chau Chow was to be constructed and put into operation as a specimen for the whole line.
Hsin Min Tun to Mukden Railway, the Russians had objected to the Chinese constructing this railway on the grounds that it would violate the Manchurian Agreement which debars other railways near the Chinese Eastern Railway.
Anhui Railways, the 8000,000 Taels being raised would not be enough for the Wuhuh to Kuangtechou Railway.
Hankow-CantonRailway , 10,000 merchants were reported to have met in Canton to discuss the building of this railway and they had agreed to raise £2000,000
Yunnan Railways, Yunnanese students studying in Japan had protested against a British proposal to build a railway from Teng-yueh to Burma.
Railway in Kansu, the Viceroy of Shen-Kan had proposed a railway scheme for Kansu.
Railway Information for Peking, the Government had directed all provincial officals to provide full details of all railway works throughout China.

Fengtai-I-Shaho Section of the Peking-Kalgan Railway, this section had been opened to traffic. Engineer-in-Chief, Taotai Chan Tien Yu would soon receive bids for construction of the tunnel through Pataling Mountain.
Fianancial - Kiangsi Railway Bank, A report that the railway bank was be located at Kiukang with other branches.
Canton-Hankow Railway a report that shareholders had been had been instructed to pay their subscriptions in 20 cents pieces.

April 1906
Peking-Kalgan Railway, the first section from Fengtai to Nankao had been opened to traffic.
Urga-Kalgan Railway, the building of this railway had been proposed.
Hsimintung Railway, the Japanese had completed the first section of this line and an agreement made to hand over the line to the Chinese.
Kashgar Railway, the Governor of Shinking had been directed to raise funds for building this railway.
Anhui Railway, a proposal to construct a line from Wuhu to Kwang-te-chow.
Railway in Tibet, the Chinese Government had approved a proposal for a railway from Chengtu to Lhassa.
Canton-Hankow Railway, the Cantonese were reported to have taken up a large amount of stock in this railway.
Szechuan-Hankow Railway, the line was to be divided into 4 sections.
Canton-Kowloon Railway, the Viceroy had asked Peking to leave the construction work in the hands of the British.
Kiukiang-Nanchang Railway, the proposed route to be changed.
Sunning Railway, the capital had been fully subscribed by overseas Chinese and the line would soon be under construction.It was intended to run from Kongmun to Tan Sui Kow.
Ningpio-Hangchow Railway, the British Minister had refused to cancel the concession for this railway. The concessionaries Jardine Matheson & Co. also refused to regard the concession as cancelled.
Locomotives for China, Robert Stephnson & Co. of Sheffield were completing 10 powerful 4-coupled bogie locomotives for the Shanghai-Nanking Railway. A description of the locomotives is included.

May 1906
Industries of the Chinese Engineering and Ming Company Primarily about the coal mining and other industries which had gown up at Tangshan, this does contain snippets about the associated railways. 8 photographs.
Hulun-Tsitsihar-Aiguu Railway in Amur Province, the Government had approved an application from the Tartar-General to build this railway.
Railways Sleepers for China, the Australian market for iron-bark sleepers in China was very good.
New Railway For Manchuria, merchants of Kirin had been in discussions with Peking about constructing a railway from Kirin to Changchun.
Labour trouble in Yunnan, the French had complained to the Governor of Kwangsi about frequent desertions of Chinese coolies under contract for construction of the line.
Railways in Shansi, the people of Shansi would build the Tatungfu-Pu-chou line themselves.
Kowloon-Canton Railway, control of the British section had been given to Chief Resident Engineer, Mr.Graves William Eves.
Yunnan Railway, the French Republic had introduced a bill authorizing necessary measures to complete the Laokay-Yunnan Railway, the original

contractor having been unable to proceed because of engineering difficulties and labour problems.

Peking-Kalgan Railway,

The cost of building this line was now estimated to be 7,000,000 Taels. The previous year 1000,000 Taels of the revenues from the Peking-Shanhaikwan line had been diverted to construction of this line.

FAR EASTERN ENGINEERING AND CONSTRUCTION NEWS

PERSONAL

Mr. W. W. Rockhill, the new American Minister at Peking, has taken over the high duties of his office.

Mr. J R. Twentyman, who sustained a broken rib and other painful injuries in a runaway accident, recently, is slowly recovering at the General Hospital, Shanghai.

Messrs. Okazaki and Nakata, of the Furukawa (Japan) Mining Firm, are making a tour of China and Korea in order to investigate mining conditions in those countries.

Hon. Hamilton King, American Minister at Bangkok, Siam, accompanied by Mrs King, has left his post and is returning home to the United States on a vacation of six months.

A Chinese paper says that Sheng Sun Wy, Imperial Commissioner of Railways, is about to be replaced by Chang Yuk Nan, a wealthy Chinaman who made his fortune in the Straits Settlements.

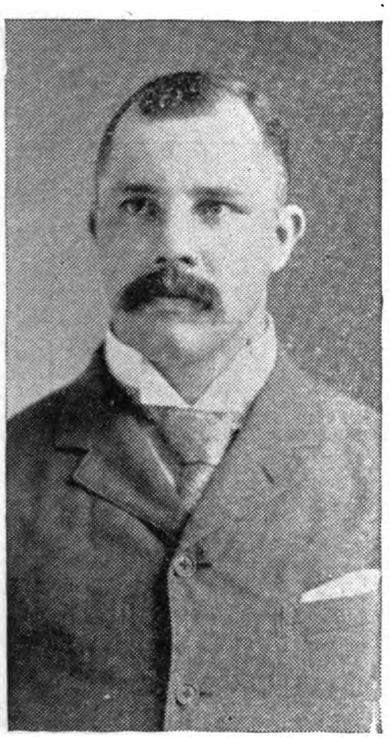
Mr. Sholom Silverstone, recently promoted from the Assistant Secretaryship of the Occidental and Oriental Steamship Company to be agent for the Harriman lines at Hongkong, has arrived at his new station. His duties include supervision of the interests of the Pacific Mail in Hongkong.

Mr. P. E. Cameron, the Calcutta agent of the Hongkong and Shanghai Banking Corporation, retires from India shortly. Mr. Cameron has been connected with the Hongkong and Shanghai Bank in the Far East for a quarter of a century, during which time he has held posts in Japan, Bombay, Penang, and Singapore, besides Calcutta.

Owing to his departure for home, Mr. H. E. Tomkins, Chairman of the Hongkong and Shanghai Banking Corporation, has resigned his seat on the Board of Directors. Mr. H. A. W. Slade, Deputy Chairman, has been elected Chairman in his place, and Mr. A. Haupt has been elected Deputy Chairman, Mr. F. Salinger, of Messrs. Reiss & Co., of Hongkong, has been appointed to the seat on the Board vacated by Mr. Tomkins.

DEATH RECORD

Mr. Arthur Pearce Bullen, Manager of the Manila (P. I.) Branch of the International Banking Corporation, died May 23d at the Philippine Civil Hospital after a protracted illness with heart and liver trouble. The remains were interred May 25th, the funeral services being conducted by Bishop Brent of the Episcopal Church. Mr. Bullen was born in



England thirty-seven years ago and spent nearly fifteen years in various cities of the Orient, from Calcutta to Manila. For ten years he was an accountant in the Singapore Branch of the Mercantile Bank of India and China, and his duties took him to nearly every city on the Malay and China coast. Coming to Manila a little more than three years ago he assumed the management of the Manila Branch of the Guaranty Trust Company, and when the business of that institution was merged with that of the International Banking Corporation, last year, he was made Manager of the latter, which position he filled to the date of his death. Mr. Bullen was highly respected in financial and commercial circles, and his death was a shock to the entire community. The deceased is survived by a mother, a brother, and two sisters, all of whom reside in England.

RAILWAYS, SUPPLIES, ETC.

TECHOW-TAKAO LINE, CHINA.—The agreement with regard to this railway is said to be approved and it will be signed shortly.

KOREAN RAILWAY.—The rails having been laid from Seoul to Wiju, the railway between those two points is open to traffic all along the line.

PEKING-KALGAN RAILWAY, CHINA —Chan Tien-yu, the native engineer deputed by Viceroy Yuan to build the Peking-Kalgan line, started the survey.

RAILWAY EXTENSION, CHINA.—The Peking Government is considering the advisability of the immediate construction of the railway between Amoy and Foochow.

RAILWAY MATERIAL, CHINA.—A large car of railway material, consigned to the "Pehan" Railway, from Belgium, has been delivered at Tientsin by the steamer *Yunan*.

SLEEPING CAR TRAIN, CHINA.—A complete sleeping-car train is shortly to arrive in China for the "Pehan" Railway, to serve for the through traffic from Peking to Hankow and *vice versa*.

PEKING-KALGAN LINE.—This road will be built with the surplus profits of the Peking-Newchwang Railway after the bondholders have been paid, the British interests having consented to this arrangement.

PEKING-KALGAN RAILWAY OFFICIALS.—Viceroy Yuan and Hu-Yu-fen have appointed Cheng Ta-cheng Director and Lu Hsi-kwei Codirector of the Peking-Kalgan Railway. The last named official was a secretary on the railway before 1900.

RAILWAY CONCESSION, CHINA.—It is announced in Shanghai that an American Syndicate is endeavoring to obtain the concession for the building of a railroad from Hangchow, Chekiang Province, to the border of Kiangsi Province.

DAET (P. I) TRAMWAY COMPANY.—It is reported that all the old cars, rails and other property of the Manila Electric Railroad and Light Company have been sold to the Daet Tramway Company, of Daet, Province of Ambos Camarines, Luzon.

PROPOSED SIN MIN-FU-MUKDEN RAILWAY.—It is reported that the Japanese Government is negotiating with the Peking authorities for the building of a railway between Sin-min-fu and Mukden in Manchuria. The Japanese are anxious to start work before the heavy rains set in.

BURMA RAILWAYS.—Some of the new engines recently imported by the Burma Railways are said to have proved too heavy for the bridges between Rangoon and Toungoo. The bridges are being strengthened, but the new engines can not be used during the rainy season, and some time is lost in the cautious slowing down now considered necessary in passing over the structures.

JOHORE RAILWAY.—It is reported that this line as far as Tampin will be opened to public traffic about July 1st. The branch section to Malacca is expected to be completed by September 1st. In the meanwhile rail laying is being vigorously pushed forward from Tampin to Kuala Geman on the Johore border. The extension through Johore territory will be in the hands of the Federated Malay States Railway Department.

RAILWAY ENTERPRISE, SIAM.—It is announced that work will soon be commenced on the new railway from Tachin to Meklong, a distance of 21 miles. The capital of the Company is 1,060,000 ticals, divided into 10,600 shares of 100 ticals each. The whole of the capital has been guaranteed so that it is probable that no shares will be offered to the public. Mr. P. B. C. Kinch is the contractor, and the work is expected to be completed within two years. The rail gauge will be one metre, and there will be eleven sleepers to a rail instead of three sleepers and a concrete foundation as on the Tachin railway. The way will be principally sand ballast.

HIGH-LEVEL TRAMWAYS, HONGKONG.—It is announced in Hongkong papers that the Hongkong High-Level Tramways Company has agreed to sell its undertaking to a new Company, which will also acquire Mr. Findlay Smith's proposed concession and carry out the scheme as projected by him of a new line to the Peak. The price to be paid to shareholders of the old Company is $200 per share payable either in cash or in shares of the new Company at shareholders' option. The new Company will be under the management of Messrs. John D. Humphreys & Son, with a consulting committee consisting of Sir Paul Chater, C. M. G., Hon. C. W. Dickson, and Messrs. Ewens and Raymond.

PENANG HILLS RAILWAY —The report of the Directors of this Company shows that the progress of the work of construction during 1904 was highly unsatisfactory. Other arrangements for carrying out the work had of necessity to be made recently and excellent progress has resulted from the change. The rails have been laid to within 70 yards of the top of the track, but the work of adjusting has still to be done. The reservoir motor house and the lower station buildings are nearly finished. The Municipality has agreed to construct a line connecting the station with the new electric tramway to Aier Etam at a cost of $6000, half of which is being borne by the Company. The Government loan of $25,000 has now been received.

RAILWAY IN FORMOSA.—When the Japanese took over Formosa they found it advisable to take up and relay the railway, which had been laid down by the Chinese Governor Lao (1885-1891). They then (1901) built a branch 13 miles long to connect Taipeh and Tamsui and also continued the main line in a southerly direction. At the same time work was begun in the South and by the end of the year rails were laid from Takow to Tainan. At the beginning of 1905 the northern railhead extended 100 miles South from Keelung, while the southern section was 97 miles long. As the total length, including the Tamsui branch, is estimated at 260 miles, the above 197 miles, plus 13, makes 210, leaving a gap of 50 miles between the railheads. As the work is being rapidly pushed on just now this gap is expeditiously being closed up. Last month the locomotive reached Taichu (Chianghon). By this time the hiatus left is only about nine miles, but as several tunnels and two large bridges are required it is estimated that it will be three years before the trains can run through. Meanwhile the railheads will be connected as far as possible by a temporary line.

SHANGHAI-NANKING RAILWAY.—A Shanghai correspondent says:—Without ostentation of any kind H. E. Sheng Kung Pao has fulfilled the duty which illness alone prevented him performing last June. It was called the turning of the first sod of the Shanghai-Nanking Railway, but it was rather a misnomer, because although the little ceremony was postponed nearly a year, work since last October, when the British China Corporation took over the line, has proceeded quietly and very rapidly and there are now 56½ miles of permanent way ready for the laying of metals, this distance taking the line up to Soochow, and it is hoped that by next October trains will actually be running. One great help has been the friendly relations maintained with the natives through whose districts they have passed and there have been no wearisome spells of inaction through obdurate landowners or prejudiced ignorance insisting on the fact that it was bad joss as the railway went over the tail of the Dragon who was therefore very wroth and would visit horrible punishments on the heads of the innocent and long-suffering Chinese.

RAILWAY PROFITS IN CHINA.—In response to a request of the Board of Commerce at Peking, the Chinese Director-General, Viceroy Yuan, and his assistant, Hu-Yu-fen, recently submitted a report of the accounts. In a brief history of the undertaking they point out that the whole line inside and beyond Shanhaikwan is 1800 li in length, of which the main line is from Tientsin to Shanhaikwan, thence to Hsinminfu, and the branches are the Peking-Tungchow and the Kaopantzu-Yingkow lines. The first line built was in the 7th year of Kwang Hsu, and was 21 li between Hsukochuang and Tongshan for the conveyance of coal. It was extended in the 12th year to Yenchuang and in the 14th year to Tientsin, and the other extensions followed quickly. The accounts from the 21st to the 25th year have already been reported and approved, while the records before and after Hu was in office were all destroyed in the troubles. The income from 30th day, of October, 1902, the date of the restoration of the railway, to the 31st of January, 1903, was $1,759,146, while the expenditure was $1,592,970 leaving a balance of $166,475. These figures are taken from the accounts kept in the foreign auditor's office of the railways.

CHINESE RAILWAYS.—The final contract for the Anglo-German Tientsin-Chinkiang trunk railway has now been drafted by the British and Chinese Corporation and the Deutsch-Asiatische Bank, and will shortly be formally laid before the Chinese Government. Count von Bülow's instructions to Baron Mumm von Schwarzenstein, communicated to the Wai-wu-pu, are that Germany will decline to open commercial treaty negotiations as provided by the protocol of 1901 until the final contract for this railway has been signed. The preliminary contract provided for a loan of £7,400,000 of which two-thirds was to be German and one third British. The final contract changes the terminus to Pu-kou, opposite Nanking, and increases the loan to £10,000,000, of which £6,500,000 is to be German, and £3,500,000 British, the whole to be secured on the railway, and to bear interest at 5 per cent, guaranteed by the Chinese Government. The railway, which is to be under foreign management, will join the line from Tientsin to Tsi-nan-fu, the capital of Shan-tung, and then run from Tsi-nan-fu to the southern border of the province, where the British section will continue to the Yangtsze in the hope of creating a trade between Shantung and the Yangtsze.

CHING-HAN RAILWAY, CHINA —This important line is nearing completion. Starting from the Ch'ienmen Station, at the very precincts of the Imperial Palace at Peking, it is constructed right through the center of the Great Plain to the city of Hankow, on the Yangtsze River. It passes three provinces (Chihli, Honan, and Hupeh) and the prefectural cities of Paoting and Shunte in Chihli; Changte and Weihui in Honan. From Peking to Yellow River the track is 620 kilometers and from the Yellow River to Hankow 515.5 or nearly 1200 kilos to the whole route. For the most part the country covered is uniformly flat and no engineering difficulty of any consequence had to be faced, but on the boundary between the provinces of Honan and Hupeh the line had to be carried in a serpentine course over a very mountainous district. The highest ridge is tunnelled. There is also a short tunnel on the Southern Bank of the Yellow River at the approach to the bridge, which is now being

FAR EASTERN ENGINEERING AND CONSTRUCTION NEWS

PERSONAL

Messrs. H. Sietas & Co., Chefoo, have taken over the entire stock and premises of Messrs. Gardner & Co., of that city.

Mr. E. S. Rengull, of the Holland-China Trading Company, has returned to his duties in Tientsin after an absence of six months in Europe.

Mr. Harper, a well-known contractor of Chefoo, has started on a trip through Mongolia *via* Kilgan. He expects to visit Irkutsk and Lake Baikal before autumn.

Mr. Burgess, of Messrs. Howarth Erskine's Penang electrical department, who was transferred to the firm's Singapore works several weeks ago, will shortly return to Penang.

Mr. C. E Spooner, C. M. G., in the service of the British Government in the Federated Malay States, is likely to be transferred to Singapore in charge of the Tanjong Pagar Docks.

Mr. J. W. Ragsdale has received instructions from Washington to remain permanently as American Consul-General in Tientsin, and his pay has been increased by $1000 gold per annum.

Mr. F. H. Cronell has retired from the management of the Electric Engineering and Fitting Company of Tientsin to accept the management of the New York Life Insurance Company in South China.

Mr. Honigman, who has been in charge of the Chefoo office of the China Eastern Railway Company for several months, has started for Russia *via* the United States. Prior to his residence in Chefoo Mr. Honigman was connected with the railway company in Hankow and Dalny.

Mr. R. H. Eckford of Cornabé, Eckford & Co., Chefoo, has sailed from Shanghai for his old home in England, *via* San Francisco and New York, where he will visit for several months. Mr. Eckford, although a young man, is esteemed in North China for his business qualifications, and socially he is a favorite.

Mr. A. Ross Owne, formerly in the service of the Canadian Pacific Steamship Line at Hongkong and Yokohama has opened an office for the company at Shanghai, where he began to act as agent on July 1st. Messrs. Jardine, Matheson & Co., who have so long and satisfactorily represented the company in North China, will continue, as formerly, to act as agents at the other China Coast and Yangtzse ports.

DEATH RECORD.

Mr. Staats, of the firm of Messrs. Bielfeld & Son, Chefoo, died recently at that place. He was 34 years of age.

Mr. W. G. C Walter, harbormaster at Port Swettenham, S. S., died recently, and the remains were buried at Kuala Lumpur.

FIRE RECORD.

SAIGON RICE MILL BURNS.—A large Chinese-owned rice mill, which had been working for about three weeks, was destroyed by fire at Saigon recently. The loss is estimated between $200,000 and $300,000.

RAILWAYS, SUPPLIES, ETC.

RAILWAY CONCESSION, CHINA.—The railway concession between Chekiang and Kwangtung Provinces has been proposed by a Mr. Bash, but the gentry of Hangchow have passed resolutions to oppose the proposal.

MALACCA RAILWAY.—The Malacca Railway will be transferred to the Government of the Federated Malay States on payment by the latter of the capital cost incurred in the construction of the line.

BRANCH LINES, CHINA.—Several branch railways are being considered in Shantung—one from Chinanfu to Chiningcho; one from South Tsintau to Suchien in Kiangsu, and one from Northwestern Shantung to Chihli.

PEKING-CHANCHAKAO LINE.—The construction of this railway has been commenced. It is to be completed in three years at an estimated expenditure of Tls. 8,000,000. The improvement has been undertaken by the Chinese Government.

PEKING-KALGAN LINE.—The Russians are said not to be satisfied with the building of the Peking-Kalgan line by Chinese, and that they wish to build a line from Kulum to Khalkha, so as to make connection with the Chinese road.

ANOTHER PACIFIC STEAMER.—Mr. Robert Dollar, who is now in Europe, has ordered from Messrs. A. Rogers & Co., of Glasgow, another large steamer for the Pacific trade. He recently took over the *Hazel Dollar* and the new vessel will be a duplicate.

RAILWAY CONSTRUCTION IN BURMA.—On the Henzada-Kyangying line good progress has been made during the six months work has been actually in hand. On the Pegu-Martaban line the earthwork is well advanced and the banks for about half the length have been thrown up.

FEDERATED MALAY STATES RAILWAYS, 1904.—The length of railways open in the Federated Malay States at the end of 1904 measured 839 miles, and the working expenses have increased from abnormal causes—the rate being about 59 per cent at the outlay. The estimated percentage return on capital in 1904 was 4.60.

JOHORE STATE RAILWAY.—This last link in the Penang-Singapore line is well in hand as a part of the Federated Malay States system of railways. Though meter gauge it is to be laid with 80-lb. steel rails, and the crown agents for the colonies have just placed an order for nearly 8000 tons with the necessary fishplates and dog spikes.

RAILWAY CONCESSION, CHINA.—Viceroy Chang Chih Tung has telegraphed from Canton to the Government at Peking that he is in receipt of a cable message from Liang Cheng, Minister to America, to the effect that there is every chance of the Canton-Hankow Railway Concession reverting to the Chinese with the willing consent of the Washington Government.

N. P.'S NEW PORT OF CALL.—It is announced that in the near future the steamers of the Northern Pacific Steamship Company, plying in the trade between the Sound and the Orient, will call at San Francisco on the return trip from the Far East. The company is now operating the steamers *Minnesota*, *Shawmut*, *Tremont*, *Pleiades*, *Hyades*, and *Lyra*, and will have the *Dakota* in the Pacific waters this summer.

SEOUL-WIJU RAILWAY, KOREA.—The question has arisen as to the prolongation of this line into Manchuria, so as to connect with the extra-mural railway system of China with Newchwang. Two routes are now under discussion, one *via* Antung, Takushan, Siuyen, Tangchi, Tashichiao and Yingkow, a distance of 211 miles; the other *via* Fenghwangcheng, Siuyen, Tomucheng, Tashihchiao and Yingkow, or 186 miles. The first skirts the shores of the Yellow Sea, whereas the other is an inland route.

TRANS-PENINSULA RAILWAY, F. M. S.—This line will be built across the peninsula from West to East. It will start from a junction at Bukit Mertajan in Wellesley Province. Mr. C. Edwin Spooner will inaugurate the construction work, and Mr. Combes, who has conducted all railway surveys in the Federated Malay States during the last four years, will shortly proceed to Perak and Wellesley Province in connection with the trace for the new line, which, after starting from Bukit Mertajam, will in all probability pass through Kulim and Kedah and through Upper Perak and across Kelatan to the Kwala Kelatan. This line will tap an enormously wealthy mineral country.

PROPOSED HONGKONG-CANTON RAILWAY.—The Governor of Hongkong, at a recent meeting of the Legislative Council of the colony, thus referred to the question of a railway from Hongkong to Canton, which had been hung up for years until he took up the reins of government:—"Since we last met negotiations have been opened at Peking with the Chinese Government for an agreement for the joint working of a railway line of 4 ft. 8½ in gauge from Canton, with one from Kowloon to the frontier of the New Territories. It is proposed that this agreement should be on the lines of one concluded by the Colonial Office on behalf of this Government with the British-China Corporation. A party of surveyors engaged to locate the line within British territory has arrived in Hongkong from England."

CANTON-WHAMPOA LINE CHINA.—The United States Minister at Peking having lodged a protest against the building of a railway from Canton to Whampoa owing to its being detrimental to the interests of the Canton-Hankow Railway Concession, the Minister of the Board of Commerce telegraphed to the viceroy under whose jurisdiction the new enterprise was organized, requesting him to furnish full particulars of the proposed road. In reply the viceroy stated that the line from Canton to Whampoa will be built by Chinese with Chinese capital, and that it is not in the way of the Canton-Hankow line, which commences from Wong Sha to the West of the city, whereas the Whampoa line will start from outside the East Gate of the city. The viceroy urges the Central Government not to allow foreign interference with the building of this road.

RAILWAYS IN FORMOSA.—When the Japanese took over Formosa, according to a correspondent of the *China Mail*, they found it advisable to take up and relay the line. They then built a branch to connect Taipeh and Tamsui, and continued the main line in a southerly direction. At the same time work was begun in the South, and, by the end of 1901, rails were laid from Takow to Trinan. At the beginning of the current (1905) year, the northern railhead extended 100 miles South from Keelung, while the southern section was 97 miles long. As the total length, including the Tamsui branch, is estimated at 260 miles, the above 197 miles plus 13, makes 210 miles, leaving a gap of 50 miles between the railheads. As the work is being rapidly pushed on just now this gap is expeditiously closed up. By the present time the hiatus left is only about 9 miles, but as several tunnels and two large bridges are required it is estimated that it will be fully three years before trains can be run through. Meanwhile the railheads are being connected as far as possible by a temporary line.

ELECTRIC LIGHTING, TRACTION, POWER, ETC.

NEW CABLE TO FAR EAST.—The Postal Telegraph-Cable Company of America, in connection with the Commercial Pacific Cable, has laid new cables to the Caroline Islands and the Dutch East Indies. These cables are not open for public use.

ELECTRIC TRAMWAY, CHEFOO.—The construction of the electric tramway along The Bund and around the Native City of Chefoo will probably be commenced shortly. The iron rails have already been delivered along a portion of the route.

TELEGRAPH LINE, THIBET TO YUNNAN.—The agreement providing for the connection of the telegraph line from Thibet to Yunnan, has been signed by an envoy sent from Lhassa to Peking, and a representative of the Chinese Imperial Government.

ELECTRIC POWER, HAWAIIAN PLANTATION.—Plans have been effected for the commencement of work to establish an electric plant on the Island of Kauai, Hawaii, for operating the irrigating pumps on the McBryde plantation. The capital stock is $300,000 gold.

BIG TURBINE PLANT.—The Japanese engineering and contracting firm of Takata & Co. has just placed, through its New York office, an order for a 1000-h. p. turbine with Jas. Leffel & Co., Springfield, O., which will be used under a 75-ft. working head. For the control of this turbine a Lombard improved type "D", oil-pressure, quick-acting water-wheel governor has been ordered. This outfit is to be installed in the Kosaka mine in Japan.

SHANGHAI TRAMWAYS.—In compliance with the result of the recent special meeting of ratepayers, the Municipal Council of Shanghai has decided to formally tender in writing the concession to Messrs. Bruce, Peebles & Co., upon the terms of the contract. With reference to the committee of ratepayers appointed to consider the question of the construction of the new system, it has been decided to offer it facilities for holding meetings in the council room, and to supply such information, etc., as may be called for.

PROPOSED ELECTRIC TRAMWAYS, NANKING, CHINA.—The viceroy of the Liangkiang is seriously considering the advisability of building an electric railway line at Nanking. Steamers must anchor at Hsiakuan, a small village on the river bank, about half a mile outside the city wall, and five or more miles from the crowded business portion of the city. Within the last few years a well-made macadamized road has been completed, nine or more miles in length, but the only means of transportation is by donkeys, horses, jinrickshas, or very poor and expensive carriages. Chinese are obliged to spend more for their transportation from Nanking to Hsiakuan than for the 36 hours' steamship voyage from Hsiakuan to Shanghai.

ELECTRIC RAILWAY EXTENSION, MANILA, P. I.—The Philippine Commission has passed an Act authorizing the Manila Electric Railroad and Light Company to extend its system of lines by building a double-track road from the present terminus of what is known as the Malate line, at the Pasay race track, to and along a private right-of-way to be acquired by the grantee parallel to the road known as Calle San Luis running from Malate to Parañaque, a distance of approximately 3,000 ft., crossing the said road at the terminus of the line and making a loop upon property to be acquired by the grantee on the East side of said road. The company is granted the right to expropriate such real estate as may be necessary for the purposes of the franchise granted in this Act.

GENERAL ELECTRIC'S HONGKONG AGENCY.—The General Electric Company of London would appear to have taken a step in the right direction when they appointed Messrs. E. C. Wilks & Co. of this city to be their sole agents for this part of the East. The latter firm has on view a wonderful assortment of things electric, and those interested, as well as those of an inquiring turn of mind, will be well repaid by a visit to their offices, in Beaconsfield Arcade, to inspect the electrical samples there displayed, for it is truly interesting and surprising to see the miscellaneous stock of fittings of all sorts on exhibition. There are to be seen church lights, in handsome brass chandeliers of ecclesiastical design; all sorts of household and ship fitting lamps of all sorts, shapes and sizes, with very dainty wall brackets, electroliers, pendants, etc., and so on down to the electric stoves, and even electric kettles, saucepans, laundry irons, shaving-pots, and ladies' curling-tong heaters. In another department is to be seen a remarkable assortment of various types of medical apparatus, worked by electricity. Many of these articles would be bound to command an immense sale, and should prove a real boon to the colony, if the Electric Company of Hongkong could supply and maintain a regular current, at a reasonable rate.—*Hongkong Telegraph.*

WATERWORKS AND IRRIGATION

IRRIGATION IN INDIA, 1904-05.—The return of irrigation operations of the spring crops of the united provinces of India for 1904-05 up to March 31st, last, has just been published and gives the total irrigated area as 1,405,364 acres as against 2,027,201 acres for the corresponding period in 1904.

WATERWORKS PLANT, SINGAPORE.—The municipal commissioners of Singapore have addressed a letter to the Legislative Council of the Straits Settlements asking that a special ordinance be passed to enable them to borrow $9,000,000 for the completion of the waterworks system. It is estimated that the expenditure yet to be incurred will amount to about $8,500,000, but the round figure of $9,000,000 has been

FAR EASTERN ENGINEERING AND CONSTRUCTION NEWS

RAILWAYS, SUPPLIES, ETC.

F. M. S. RAILWAY LOCOMOTIVES—The Federated Malay States Railway has, as a part of its equipment, sixty-three serviceable locomotives.

MAINTENANCE OF WAY, MADRAS RAILWAY.—The cost of maintaining a mile of single track, including sidings, on the Madras Railway for six months is about Rs. 961.16.

HANKOW-CANTON LINE.—There is a report afloat on the China Coast to the effect that on the payment of Tls. 7,000 000 the Hankow-Canton Railway may be restored to the Chinese.

FRENCH CONCESSION, KWANGSI PROVINCE, CHINA—France is now endeavoring to secure a concession for the building of a railway in Kwangsi Province, from Lung-chow to Kwei-lin *via* Liu-chow. The British Minister to China is said to be opposing the concession.

STRETINSK-HABAROVSK LINE.—The Russian Government is reported to intend laying a line of railway from Stretinsk to Habarovsk along the Amur, as originally planned, for which the easier line through Manchuria was afterwards substituted.

MALACCA RAILWAY, S. S.—It is understood that the Legislative Council of the Straits Settlements has approved of the transfer to the Government of the Federated Malay States of the Malacca-Pulau-Sebang Railway on payment by the government of the capital cost of the construction.

YOKOHAMA-HACCHIOJI EXTENSION—The directors of this Japanese railway have decided to extend the line from the Keihin Station at Kanagawa to the foreshore at that place by building the railway on the reclaimed land there. Car shops, factories and the main office of the company will also be constructed at the end of the extension.

PERAK (F. M. S.) RAILWAYS.—The length of open line from Prai in Province Wellesley to Tanjong Malim, on the Selangor border, and of the short line from Taping to Port Weld, gives a total mileage of railways in this state of 213, with forty-four stations opened to traffic. The capital account of the railways exceeds $19,000,000 and the addition thereto in 1904 was $250.000. Receipts amounted to $2.057.000. The line is well maintained.

RAILWAYS OF JAPAN, 1904.—At various times in 1904 the ordinary railway traffic suffered from movements of troops, but the railways themselves profited, and they show increased earnings for the period under review. Two hundred and fifty-eight miles of railway were opened to traffic during the year, as compared with 211 miles in 1903, the total mileage now being 4,491 miles, of which government lines account for 1,345 miles.—*British Consular Report.*

SEOUL-FUSAN RAILWAY.—The Seoul-Fusan Railway Company, which was compelled to erect the Fusan station at Tsuanriong owing to the British Consulate point being midway between that place and a convenient point in the Port of Fusan, has reached a satisfactory understanding with the British authorities. The company will remove the British Government building to another site at its own expense and extend the railway as far as a certain place selected for that purpose, facing Fusan Harbor.

AMERICAN FREIGHT CARS, JAPAN.—An order has just been closed with the American Car and Foundry Company for 1,000 freight cars for the Japanese Government. The cars are to be of the gondola type, with steel underframes and with a capacity of 20 tons. It is understood that the order was divided equally between the Japanese Government purchasing agents, Messrs. Mitsui & Co, and Messrs. Okura & Co. Shipment is to be made as early as the order can be filled.

RAILWAY EXTENSION, NEGRI SEMBILAN, F. M. S.—A survey of a possible extension of the railway system of this state has been made from a point on the Gemas River near Bukit Bantan, following along the South bank of the Muar River past Batu Bersawah where it crosses to the North bank of the Muar, past Kuala Jempol, and on through the Serting District, probably to be continued thence through the undeveloped and, except for aborigines, as yet uninhabited portion of the state near Pasoh, to, it is believed, Kuala Semantan in Pahang.

LOCOMOTIVES FOR JAPAN.—The principal features noticeable in the trade in locomotives (1904) are a large increase in imports from the United Kingdom, a corresponding decrease from the United States and a big jump in the imports from Germany. It is interesting to note that during the past year the British type of locomotive obtained the preference, and that all the German locomotives and many of those from America recently imported or still on order are of British type and standards. So far as price goes, the three countries seem to compete on about equal terms. Germany now requires the longest time for manufacture, while there has been little to choose between the United Kingdom and the United States in this particular.—*British Consular Report.*

NEGRI SEMBILAN (F. M. S.) RAILWAYS—The total length of this line, which has already been surveyed, from Seremban to the Negri Sembilan border at the Gemas River, is 65 miles. The progress on earthwork shows that out of a total of 4,294.432 cubic yards in the whole length of the line, 3,083,000 had been completed and excavated by the end of the fiscal year, of which 2,421,965 were during 1905. Out of a total of 300 bridges and culverts, 191 have been completed and 52 more are in progress. Nineteen miles of permanent way were linked in, and at the end of December 1904 all sleepers necessary for the line as far as Tampin—about 96,000 in number—have been delivered from the forests of Negri Sembilan. Level crossings and road deviations have been completed up to the 50th mile. The telegraph has been completed up to Tampin and is in progress of erection up to the 46th mile. All stations and buildings have been completed up to Tampin and are in progress along the remainder of the line.

FEDERATED MALAY STATES RAILWAYS—The total expenditure on construction and survey of new lines including $90,330 for the Johore line, amounted in 1904 to $2,898,949, all of which was met by surplus revenue funds. If to this be added the sums expended on the Malacca-Pulau-Sebang Railway and the extension to Singapore, both of which are being carried out by the Federated Malay States Railway Department on behalf of the colony, the total expenditure on construction amounted to $3,844,119—to which, perhaps, should also be added the expenditure on the new central workshops, new central offices, and other special services, making a gross total of $4,897,081. The extensions in hand during the year were the Negri Sembilan extension from Seremban towards Malacca, now completed to Tampin; the Batu Caves, extension, the object of which is stated to be the transport of ballast to the main line and which also joins up the new central workshop with Kuala Lumpur; the survey from the Gemas River on the borders of Pahang to Kuala Semantan, 72 miles, of which 19 miles of field work and 15 miles of plans and sections were practically completed by the end of the year, and the Johore extension, about 120 miles, the survey of which began early in the year and preparations for construction started at the end of the year. The survey was completed and good progress made with the construction of the Malacca-Pulau-Sebang line, 21 miles, which will be finished in the course of the year.

ELECTRIC LIGHTING, TRACTION, POWER, ETC.

TOKYO ELECTRIC RAILWAY EXTENSION.—The line of this corporation has just been extended from Ochanomizu to Manseibashi.

TRACTION, HONGKONG.—It is proposed to use a gas-producer power plant for the operation of the new Peak Tramway at Hongkong.

BANGKOK ELECTRIC CAR SERVICE.—The new electric cars for the Bangkok (Siam) lines, have been tested with success, the power being supplied for the nonce from the plant of the Siam Electricity Company. The tramway company is issuing Tcs. 200,000 of share warrants and debentures.

ORIENTAL TELEPHONE AND ELECTRIC COMPANY—This concern will authorize the creation of debenture stock to the amount of £200,000 to provide for the reconstruction and extension of the installations, to comply with the requirements of the Governments of India, the Straits Settlements and Hongkong.

LARGE CONTRACTORS FOR JAPAN.—Contracts amounting to fully $5,000,000 gold, calling for the shipment with all despatch, of electrical equipment, machines and tools, have been placed in the American market on Japanese account. The orders are mostly closed by the New York representatives of Japanese firms. The machinery is for installation in the principal government shipbuilding yards and arsenals.

AERIAL ROPEWAY, HONGKONG—An aerial ropeway is being constructed by the military authorities at Hongkong for the purpose of conveying ammunition, etc., from the landing wharf in the harbor to the magazines on the hill. The trestles are of iron lattice columns in concrete foundations and the car sits load about two tons. It is intended to continue the line up to the new military hospital at an early date. A similar ropeway is in active operation at the dairy farm on the S. side of the island, transporting loads from the sea level up to the farm at Pok-fo-lum.

HONGKONG ELECTRIC COMPANY LTD.—The manager of this company reports that on June 1st. last, the number of lamps, fans motors connected to the concern's supply service was equivalent to upwards of 34,500 lamps of 8 c. p. Eighty-five arc lamps are maintained and 15 electric lifts are being operated by the power service. During the year a 250-kw. steam alternator was erected at the company's works, and an improved motor generator has been fitted for use in connection with the power service. A new chimney is now in course of construction at the works.

ELECTRIC LIGHTING, CANTON, CHINA.—Messrs. Shewan, Tomes & Co., of Hongkong have entered into an agreement with the taotai of Canton whereby it shall enjoy an electric lighting monopoly of the city for a term of years. The company shall illuminate the yamens of the viceroy and governor at half price and other yamens and government colleges shall be charged two-thirds of the original price. On the first five days of every year and on the occasion of the anniversary of the birthdays of their majesties, the Empress-Dowager, and Emperor and Empress Hwong Hsu, the company shall supply 200 lights free of charge. At the expiration of the present term, it shall be at the option of the firm as to renewal or otherwise of the agreement.

MESSRS. GERMANN & CO., LTD., MANILA, P. I.—This enterprising firm has recently again enlarged the premises of its engineering department. A splendid large separate sales and exposition room has been added to the mechanical and electrical shop, Escolta No. 100, rear building, which has already been found too small to attend to all the orders in a prompt and efficient manner. The very complete assortment of all classes of electrical apparatus, machineries and fixtures, always stocked, enables this firm to accept any contracts' of any kind of electrical and mechanical works; also to attend to every sort of repairs in this line of business. Owing to the great variety of their goods in stock, Messrs. Germann & Co. were the only people of this branch to accept recently a very important repair contract for the whole electric installation on board the Imperial Russian ships *Oleg* and *Zemtchug*, now lying in Manila Harbor, which work will be completed in forty-five days from the date of the contract.

WATERWORKS AND IRRIGATION

JAPANESE PLANT AT YINGKOW.—The Japanese residents of this city have decided to construct a waterworks system at Yingkow. The water is to be brought from the upper reaches of the Liao River, and the works will be large enough to supply 60,000 persons.

KRIAN (F. M. S.) IRRIGATION.—In regard to the Krian irrigation works estimated to cost $1,600,000, progress in 1904, though disappointing on account of deficiency in the labor supply, was satisfactory insofar that it included laying pipes for the syphon crossing of Kurua River, a difficult operation; completion of banks from the intake to this point (about 3 ½ miles) for the greater portion of which it was necessary to transport material by trucks and locomotives; completion of the spill weir and closing of the Merah River channel, and completion of the Tanjong Piandang, Titi Serong and Alor Pongsu channels, and of the regulators at Bagan Seari and head of the Selinsing branch canal.

SEREMBAN (F. M. S.) WATER SUPPLY.—This scheme, which has been roughly estimated to cost $175,000, is reported to be well under way. Seven-in. wrought-iron spirally-riveted pipes are to be used, and the first shipment has arrived in Singapore. A retaining reservoir is to be constructed 7 ¼ miles from the service reservoir on Gun Hill in Seremban, on the slopes of Gunong Angsi, where possibly a storage reservoir may also be required. The survey for the system has been practically completed and the scheme is to bring the water from Sungei Simin, rising on the slopes of Gunong Angsi, in 7-in. pipes to a service reservoir on Gun Hill, from which water can be supplied to the consumers by gravitation.

BUILDINGS.

BANK OF JAPAN, HIROSHIMA.—The building for the Hiroshima Agency of the Bank of Japan, now in course of construction, has been thrown open to business. Mr. Bunzaburo Watanabe is manager of the new agency.

BUILDING OPERATIONS, STRAITS SETTLEMENTS—According to a Singapore paper building operations are going on steadily in the Straits Settlements, North and South. In Singapore most of the hotels are in splints and new wings are being added. In the suburbs it is next to impossible to rent a decent house and these are regarded signs of prosperity. Mr Towkay Loke Yew, a wealthy resident, has introduced an up-to-date office building known as Winchester House. It is located on Collyer Quay, is on London lines, contains several dozen offices, and is to be fitted with electric light and the first elevator seen in Singapore.

CHIEF COURT BUILDINGS, RANGOON.—The Public Works Department of Burma is advertising for tenders for the construction of the whole of the new Chief Court Buildings at Rangoon. Bids will be opened at the office of the Executive Engineer, Construction Division, Rangoon, September 4th. The estimated cost of the buildings is Rs. 13,07,636. Particulars of the estimates:—Main Chief Court building, including sanitary works, Rs. 11,75,736; stable and carriage shed with peons' and durwans' quarters, Rs. 28,138; refreshment room for natives with married and single men's quarters, Rs. 21,619; lean-to roof of native refreshment room, Rs. 2,808; stable and carriage shed with European refreshment room, Rs. 9,425; latrine, bathing shed, official assignee and bailiff's auction room warehouse, sweepers' quarters, sanitary appliances (for 2-9) quarters, cost iron railings, gates, roads, culverts and wooden fencing making up the balance.

BRIDGES.

MAIZURU RAILWAY, JAPAN.—The temporary bridges and embankments in this line, which had been constructed in haste are being replaced by substantial structures. The improvement will be finished by the end of the present year.

BINONDO (MANILA, P. I.) LIFT BRIDGE.—The whole material for this structure, consigned to Messrs. Germann & Co., Ltd., Manila, has arrived and been discharged, but the immediate erection with which the firm intended to proceed at once is necessarily to be delayed owing to the city not having prepared the foundations in due time.

PUBLIC WORKS.

FEDERATED MALAY STATES IMPROVEMENTS.—The magnitude of some of the improvements in the hands of the Public Works Department may be judged from the following list:—Krian irrigation, $1,600,000; Negri Sembilan-Pahang trunk road, $1,235,400; Kuala Lumpur electric light, $880,000; Guides cantonments, $225,000; Seremban waterworks, $175,000, town hall at

FAR EASTERN ENGINEERING AND CONSTRUCTION NEWS

PERSONAL

It is announced that Messrs. Arnhold, Karberg & Co have opened a branch at Newchwang in charge of Mr. Otto Hoppe as manager.

Mr. W. Wilson, manager of the Kowloon Docks, has been appointed acting chief manager during the absence on leave of Mr. W. B. Dixon.

It is reported that Mr. R. H. Brown is to succeed Mr. Morgan Browne as works manager on the staff of Messrs. Howarth Erskine, Ltd., in Bangkok,

Mr. J. E. Boulton has been appointed acting Assistant Director of Public Works at Hongkong during the absence on leave of Mr. P. N. H. Jones.

Mr. B W. Cadwallader, of The B. W. Cadwallader Company, Manila, and Miss. Grant, daughter of Mr. Louis T. Grant, general manager of the firm of Grant & Co., Ltd, Manila, were married recently in this city.

Mr. J. W. Davidson, late acting American Consul-General at Shanghai, and Consul-General designate to Antung, who has been suffering with typhoid fever, is now convalescent. He has sailed for the United States.

RAILWAYS, SUPPLIES, ETC.

SHANGHAI-NANKING LINE.—Four large locomotives for passenger trains, and two smaller locomotives for construction trains, for the Shanghai-Nanking Railway have arrived at Woosung.

LINE TO KALGAN, CHINA.—The Chinese Government has commenced the construction of the 120-m. railroad to Kalgan. A contract for a large portion of the rails has been awarded to a French firm.

CHINA RAILWAYS AND BELGIUM.—It is reported from Peking that the Chinese Government is borrowing a further sum of £508,000 from Belgium capitalists, for railway extension, and the agreement has been signed.

RAILWAY SURVEYS, FEDERATED MALAY STATES.—The following railway surveys will be shortly undertaken by the Federated Malay States Government:—Kuala Semantan to Kuala Lipis *via* Bentong, about 100 m ; Kuala Semantan to Kuala Lipis *via* Kuantan; Kuala Semantan to Kuala Lipis, about 70 m.

KWANGCHOW-KOWLOON LINE.—The viceroy and Governor of Kwangtung has telegraphed to the Waiwupu protesting against the grant of a concession of the Kwangchow-Kowloon railway to any foreign syndicate. The viceroy says that the Liangkwang provinces must find the money themselves and can not afford to let the line go to foreigners.

HSINNING-CANTON LINE, CHINA —Representatives of the promoters of this railway have collected over $600 000 in the United States for the enterprise, and this sum, with the money already guaranteed in Canton and Hsinning, comes up to $2,000,000. Permission for the construction of the line has already been granted by the Chinese authorities.

FREIGHT CAR ORDER, JAPAN —Five hundred gondola freight cars have been ordered by the Japanese Government, through Messrs. Mitsui & Co., from the Middleton Car Works of Middleton, Pa., which makes a total of 2,400 cars known to have been contracted for by Japan within the last 3 months. The cars will be of wood, fitted with the King patent, steel underframe.

YUNNAN RAILWAYS.—The request of the French consul at Mêng-tsz' for the employment of French engineers on the construction of the Chinese Government railways in Yunnan and Szechuan has been refused by the viceroy of Yunkui. The consul then endeavored to secure from the viceroy a promise that no foreign engineer, irrespective of nationality, should be engaged on the railways, but this request was also refused.

RAILWAY EQUIPMENT, JAPAN.—The large rush orders for locomotives and freight cars placed with American manufacturers by the Japanese Government for the imperial railways have been occasioned, it is said, by the depletion of rolling stock caused by the shipment of large quantities of equipment from Japan for the Manchurian railways. The extremely wide gauge (8 ft.) of the Manchurian lines has been reduced to 3½ ft., which renders useless the rolling stock captured from the Russians.

TIENTSIN-CHINKIANG RAILWAY.—With reference to the agreement for this line, drafted by Great Britain and Germany, the Waiwupu at Peking, in accordance with the petition of the people of Shantung Province, has communicated to the British Minister its desire to cancel the agreement, to which the British Minister replied that that was impossible, while the German Minister, after telegraphing urgently to his government, is doing his best, through the Governor of Tsingtao, to suppress the opposition in Shantung.

RAILWAY CONCESSIONS GRANTED BY CHINA.—*Chinchen:* To England and Germany; from Tientsin to Chinkiang; 600 m., capital £7,400,000. *Branch lines:* From Tichu in Shantung, to Chenting in Chihli, and from Chinting in Shantung, to Kaifeng in Honam. *Huning:* To England; from Shanghai to Kiangning, 233 m.; capital £3,000,000. *Suhangyung:* To England, from Suchau to Hangchou and to Ningpo, 1677 m. *Chinkuang:* To England, from Canton to Kowloon 90 miles. *Puhsin:* To England from Puku in Kiangning, through Anhui to Hsinyand in Honau; 333 miles. *Tsepu:* To England; from Tsechau in Shansi to Puku in Kiangning. *Tienyueh:* To France; from Annam Mentgtzu and Yunnan. The Chinese Government has Tls. 1,000,000 invested in it. *Tienmien:* To England; one from Tengyuen in Yunnan; to Burma, and one from Shunning to Burma.

RAILROADS IN CHINA.—Mr. J. W. Ragsdate, American Consul-General at Tientsin, has submitted to his government what he believes to be a complete schedule of railways constructed and projected for China. It is as follows: RAILWAYS CONSTRUCTED—*Eastern Chinese:* Russian money loaned by France; from Siberia to Yingkau. The Chinese Government has Tls 5,000,000 invested. *Southern Manchuria:* Russian capital; from Yingkau to Port Arthur and Dalney. *Chingchin:* From Peking to Tientsin, 80 m.; British capital and Tls. 2,000 000 of Chinese capital. *Chinyu:* British capital; from Tientsin to Shanhaikwan; 131 m. *Kwanwai:* British capital; from Shanhaikwan to Hsinmintun; 240 m.; cost Tls. 160,000,000. *Kwanwai Chihli:* Branch lines beyond Shanhaikwan; one from Chinhusu to Hsinmintun; one from Ninho to Nanp'ao coal mines cost Tls 1,500,000 *Chinpao:* Belgian and French capital; from Tientsin to Poatingfu. This is a portion of the Luhan line. *Luhan:* Belgian and French capital; from Lukuchiao to Hankow: 933 m. capital Tls 40,000,000 of which Tls. 13,000,000 is owned by the Chinese Government. *Luhan Branches:* From Linliho to Chukutien in Fangshan district 9 m.; from Jungtsu to (1) Kaifeng, 57 m.; to (2) Honanfu 83 m.; from Yencheng to Chuchiation 40 m.; capital Tls. 1,700 000. *Sungha:* Belgian and French (British?) capital; from Shanghai to Wusung; 10 m. Paid from the Luhan money. *Kiaochi:* German capital; from Kiaochau to Chinanfu; 343 m.; capital £15,000,000. *Lungchau:* French capital; from Lungchau in Kwangsi to Annam; 50 m.; capital Tls. 9,000,000. *Chengtai:* Russian with French capital; from Chentingfu, in Chihli, to Taiyuenfu, in Shansi; 167 m.; capital Tls. 6,849,000. *Tuehhan*—United States; from Canton to Hankow; 800 m.; capital Tls. 40,000,000.

RAILWAYS IN FORMOSA.—Mr. F. D. Fisher, American Consul at Tamsui, Formosa, in his last report says: —From January 1st, 1905, full forces have been working day and night on the construction of the section of the Formosan Government railway from the Dakusi River to Koroton, 40 m., with the expectation of opening it to traffic by April 1st. This section is a northern extension of the southern division. The principal difficulty that presents itself in this work is the crossing of the Dakusui River. On account of the force of the current during the floods and the continual changing of the channel the engineers have not as yet been able to decide upon a satisfactory plan for the construction across the stream of a permanent steel bridge, which will require a length of about 4,000 ft. However, experimental piers are soon to be constructed, which, if found satisfactory after a fair test, will be adopted in the erection of the bridge. Upon the completion of this section there will still remain a gap of about 9 m., between the northern and southern divisions of the railroad—from Hakukoko, the present southern terminus of the northern division to Koroton, which will then be the northern terminus of the southern division. On account of the extensive tunnel work and bridging to be done in this section, the two divisions will probably not be connected before the end of 1906 Eight tunnels, aggregating a length of 3¼ m., and bridges over the Taian and Taiko rivers and a branch of the latter, of 2,510 ft., 1,760 ft. and 200 ft. in length, respectively, are to be constructed within the 9 m. At present a double tramway line of 19¼-in. gauge circuitously connects the two divisions of the railway, Chinese coolies furnishing the motive power. When the two divisions are joined, the main line will extend from Kilung, in the N., through the western portion of the island, to Takow in the S., a distance of about 250 m., and will afford transportation facilities between the principal ports and the developed sections of the island. Small tramways, from 3½ to 15 m. in length, reach out into the more important of the productive districts along the line. Chinese coolies furnish the motive power on these tramways, and while they are miniature affairs, having a gauge of but 19½-in. and the beds of the cars being but 4 ft. sq., they generally meet the requirements, the chief of which seems to be cheapness of transportation. The railway bureau has well-equipped repair shops at Taihoku, on the northern division, and shops suitable for making ordinary repairs at Takow, on the southern division. The Osaka Car Construction Company has branch shops at Taihoku, from which freight and passenger cars are now turned out.

ELECTRIC LIGHTING, TRACTION, POWER, ETC.

SIAMESE TRAMWAY COMPANY, LTD.—The lines of this company will be opened for public traffic Sunday, October 1st. Thirty cars will be put on the run at once. The big car shed is now complete It measures 200 ft. by 20 ft. and at the far end are three pits capable of accommodating 12 cars. The power station contains three 200 kw. direct-current plants by Messrs. Bowett & Lindsay. The switchboard has three generator panels, one total output panel, three feeder panels, and one station-lighting panel. The condensers are by the Wheeler Engineering Company, the overhead traveling crane by Messrs Jessop & Appleby, and there are three Babcock & Wilcox water-tube boilers.

ELECTRIC LIGHT COMPANIES, JAPAN —There are 68 electric light companies in Japan, having aggregate authorized capital of -Y-15,428,250, of which amount -Y-12,517,1·5 is fully paid up besides -Y-1,014, 287 credited to reserve funds. The total length of electric lines is 1,459 m., or about 5,000 m. of wires. Sixty-nine thousand three hundred and twenty-eight houses are supplied with light to the extent of 296, 872 *watts*, and 8,818 street lamps are operated. The aggregate receipts amount to -Y-4,051,709 against an operating expense of -Y-2,224,145, leaving a net profit of -Y-1,827,564, of which -Y-1,388,101 was distributed in dividends last year, making an average of 11 per cent in profits on the paid up capital.

CELEBES-GUAM CABLE.—The cable steamer *Stephan*, of the North German Cable Works, Nordenham, has completed the laying of the cable between Menado, Yap and Guam, for the German-Holland Telegraph Company, of Cologne. The length of this cable is nearly 2,000 m., and its weight about 4,000 tons, and the greatest depth attained 2,300 ft. By this cable the Dutch-India colonies and the German Carolines are placed in communication with the American Pacific cable. The *Stephan* will next lay a cable 130 m in length from Shanghai along the China Coast, which will form a part of the Shanghai-Yap cable, of which the main line is now being constructed by the North German Cable Works and which, it is expected, will be laid next winter.

ELECTRIC-HYDRAULIC PLANT, JAPAN.—An order has been placed with American manufacturers for an electro-hydraulic plant for the Kanazawa Electric Light Company, Kanazawa, Japan. It will consist of a Westinghouse 120-kw, rotating armature alternator, 2,200 volts, 60-cycles, 3-phase, to be direct coupled to a 22-in., high pressure, horizontal Victor turbine made by the Platt ironworks, Dayton, O. The turbine is to be capable of developing 230 actual h. p at the shaft, under a working head of 190 ft., running at 720 r. p. m. Some of the power of this wheel will be used in operating other apparatus in addition to the 120-kw. generator. To furnish excitation a 2-kw. machine will be driven from the generator shaft. To control the above alternator and exciter, there will be a standard Westinghouse white marble switchboard, equipped with Westinghouse instruments. For governing a Lombard type "Q" 8 x 16 governor has been ordered. It is hoped to lay down the complete plant in Japan by the first part of October.

DEVELOPMENT IN INDIA —Considerable activity is being shown in India in electrical development. The Indian Electric Supply and Traction Company (Limited), with a capital of £600,000, divided into 120,000 shares of £5 each, has been formed in London, to establish and work electrical enterprises in India. Messrs. Kilburn & Co. and Crompton & Co. (Limited) occupied practically the same respective positions towards the Calcutta Electric Supply Corporation (Limited), as they will occupy toward this company. The first business of the company will be to construct a tramway in Cawnpore and its suburbs, with the necessary generating station to supply electric power for working such tramway, and also to supply current for electric light and the working of fans and for other purposes in Cawnpore. Concessions have been granted by the municipal board of Cawnpore, the district board of Cawnpore and the cantonment committee of Cawnpore, these concessions being authorized by the government of the United Provinces of Agra and Oudh by orders which have been sanctioned by the government of India. The concessions provide for their early transfer to this company.

ELECTRIC TRAMWAY COMPANIES, JAPAN —The first electric tramway built in Japan is the line 8 m. in length, opened in Kyoto in 1895, during the holding of a national industrial exposition in that city. Since then other cities have adopted the system, and at the present there are 17 electric tramway companies in the empire, with an aggregate capital of -Y-36,000,000 or roughly $18,000,000 gold, operating 120 m. of line, and with 85 m. under construction. Most of the companies are, however, still in the initiatory stage, and have yet to show profitable returns. The Tokyo tramways, show an annual profit of not less than 10 per cent, and it is confidently expected the other lines will prove equally remunerative.

From the recent statistics compiled by the Imperial Department of Finance, it appears that the United States leads in supplying eletric motors and cars. During the year of 1904, American manufacturers sold to Japan electrical machinery to the value of -Y-812,226, or about 66 per cent of the total imports and electric cars to the value of -Y-783,699, or about 87 per cent of the total.

Following is a list of the electric tramway companies of Japan, with authoritative date compiled by the Department of Finance:—

Tokyo Street Railway Company.—*Capital*—Authorized, -Y-15,000,000; paid up, -Y-6,000,000; reserve, -Y-23, 364. *Lines*—In operation, 10.46 m ; length of track, 20 61 m.; under construction, 4 45 m.; length of track, 9 10 m. Number of cars, 351; passengers carried, 18,937,907. Earnings, -Y-855,002; expenses, -Y-329,358; net earnings, -Y-525,650; dividends, -Y-360,000; rate, 1 per cent.

Tokyo Electric Tramway Company —*Capital*—Authorized, -Y-6,000,000; paid up, -Y-5,000,000; reserve fund, -Y-289,915 *Lines*—In operation, 12.45 m.; length of track, 21.12 m ; under construction, 0.68 m.; length of track, 0 68 m. Number of cars, 250; passengers carried, 42,350,787. Earnings, -Y-1,464.183; expenses -Y-712.404; net earnings, -Y-751,779; dividends, -Y-512, 188; rate, 11 per cent.

FAR EASTERN ENGINEERING AND CONSTRUCTION NEWS

PERSONAL

Mr. T. F. Carlisle, H. B. M. consul at Hanoi, has entered upon his official duties. This is the first consulate in the metropolis of Tonkin.

Mr. Willis E. Grey, late engineer-in-chief of the Canton-Hankow Railway Company, has entered a suit at Shanghai against the American China Development Company, claiming damages in the sum of $43 500 gold for breach of contract. This is the company that has just sold its rights to the Chinese Government for $7,000,000.

Mr. David Kinlock Michie, an engineer of the Colombo Iron Works, and Mr. George Herbert Golledge, a planter of Gikiyanakande Estate, Nebodn, Ceylon, have been authorized to file at Penang, Straits Settlements, a specification of an invention for "improvements in the method of separating or coagulating india rubber, and its appliances therefor."

Mr. George E. Wade, a well-known sculptor, has been commissioned to mould the first public statue of Queen Alexandra. Its destination is Hongkong. The statue is to be erected out of a fund raised in connection with the celebration of the coronation in Hongkong. It will be life-size, of bronze, and will represent Her Majesty in her coronation robes.

Mr. Lorenz, an electrical expert representing the firm of Messrs. Arnhold, Karberg & Co., recently gave a demonstration at Lanchow, China, of the advantages and the working of the Marconi system of wireless telegraphy. Messages were sent from that place to Tientsin and received there by means of a balloon with a long, light wire tail, and connected with the apparatus by a wire line. It is understood that the Chinese Government intends to use the Marconi system of telegraphing at the forthcoming autumn manoeuvres at Paotingfu.

RAILWAYS, SUPPLIES, ETC.

SHANGHAI-NANKING LINE.—The construction work on the section of Chinkiang of the Shanghai-Nanking line has been commenced.

CIRCUM-BAIKAL RAILWAY.—It is reported that the new Circum-Baikal Railway has been totally destroyed. Russia has ceased the transportation of troops to Manchuria.

RAILWAY EXTENSION, JOHORE.—The railway extension from Johore Bahru to the frontier of Malacca is proceeding apace, and has now been constructed within two m. of Tampoi in Johore.

JAPANESE MANCHURIAN LIGHT RAILWAY.—This line, which starts from Antung-shien, is now said to have been completed as far as Motienling Pass. Another line to the Kirin region is being constructed with dispatch.

RAILWAY SURVEYS, F. M. S.—The following surveys for a system of light railways in Perak are being made: Tronoh to Ipoh, 14 m.; Tapah Road to Temoh, *via* Tapah and Chenderiang.

CANTON-KOWLOON RAILWAY.—The viceroy of Canton and the British consul are negotiating for the construction of this line. That portion of the road which leads through Chinese territory will be built by the Chinese Government.

CANTON-HANKOW RAILWAY.—Negotiations for handing over this line to China have been completed in Washington. The Hanyang ironworks are employed night and day in the manufacture of iron rails and other railroad materials.

RAILWAY CONSTRUCTION, BURMA—Good progress is reported to have been made on the Pegu-Martaban line. Of earthwork about half has been done. Good progress is also reported on the Henzada-Kyangyin line. The earthwork is nearly completed.

RAILWAY CONTRACT, CHINA.—The Chinese Government has placed an order with a certain French firm for 5.000 rails, to be delivered within 6 mos. from date of contract. The rails are for the construction of the line between Peking and Changkakou.

KWONG-CHOW-WAN RAILWAY, CHINESE FRONTIER.—A Chinese merchant, He Fan, sent a petition to the viceroy of his province applying for permission to join with certain foreign merchants in constructing the Kwong-chow-wan Railway on the Chinese frontier, and was refused, because the Chinese are afraid that endless trouble would arise if foreign capital be allowed.

RAILWAYS IN SHANTUNG.—The gentry of the Province of Shantung have decided to build railways in that province themselves. Lu Hai-huang, president of the Board of Works and Treaty Revision Commissioner in Shanghai, has been appointed their representative. They have memorialized the Peking Government to appoint Wang Hsi-fang the director-general of the Railway Administration throughout the Province of Shantung.

SUNNING RAILWAY, CHINA.—Chan Yi-Ki, one of the promoters of the Sunning Railway, has returned from America to Hongkong, and at a subsequent meeting of the Sunning Commercial Company, the Sunning Railway affairs were put before the meeting. It is said that Chan returned with about $1,300,000 gold, which is lying in two of the Hongkong banks and which represent a portion of the capital subscribed by the Sunning people in America.

YUNNAN-SZECHUAN RAILWAY.—This line has been decided to be built with China's own funds, and the regulations have been presented to the Peking Government and a rescript issued to the proper authorities to attend to the matter. The Waiyupu, it is reported, has found some difference between the regulations of this proposed line and those of the Szechuan-Hankow Railway, and has ordered the viceroy of Yun Kwai to revise the regulations to coincide with those of the Szechuan-Hankow enterprise.

IMMENSE JAPANESE PURCHASES.—Japan continues to place immense orders for railway materials with manufacturers in the United States. The latest announcement is that the Tokyo Government has just bought in the American market for immediate delivery 150 locomotives, from the Baldwin Works, to cost $2,225,000; 350 steel bridges from the United States Steel Corporation, to cost $500,000, and 2,000 steel cars, to cost $2,000 000. Apparently this mass of material is for work in Korea and Manchuria.

MALACCA RAILWAY.—The latest report from Mr. G. W. Fryer, chief resident engineer of the Malacca-Pulau Sebang Railway, states that the whole of the 21 m. is now linked in the junction effected with the Negri Sembilan extension at Tampin. Out of a total of 89 bridges and culverts, 85 have been completed and the remaining 4 are in progress. All station buildings at Malacca, Durian Tunggal, Alor Gajah and Tampin are nearly finished. The total amount expended on the railway to date of report was $271,717.

STUDYIND RAILWAY ENGINEERING, JAPAN.—There are now over 200 Chinese students in Japan studying railway engineering at their own expense. The majority of these students are natives of Hupeh, and as they are short of funds many have been obliged to give up their studies. This having been brought to the knowledge of Viceroy Chang Chih Tung, through a returned government student, the viceroy contributed $20,000 towards the expenses of the students, besides sending another batch of students to Japan.

JAPANESE RAILWAYS IN KOREA.—The latest report from Japanese sources with reference to the Korean railways is to the effect that trains will be running from Fusan to Seoul by January 1st, and that the military railway to Wiju will be completed as far as Pingyang. In March next ground will be broken for the Seoul-Gensan line. Surveyors have already started work, and it is hoped that the line will be finished by the end of the present year. In connection with the Seoul-Chemulpo line it will form the transpeninsular route between the Yellow Sea and the Sea of Japan. The trunk line from Fusan to the Yalu, and from Antung to Liaoyang in Manchuria, will bring Japan into direct touch with the Chinese Eastern Railway.

RAILWAY TO TANJONG PAGAR DOCKS, SINGAPORE.—Mr. J. H. Williams, resident engineer, reporting on the progress of the work during July on the Singapore-Kranji railway extension to Tanjong Pagar Docks, 61,112 cub. yds. of earthwork were completed to date. On the two major bridges well sinking was done to the depth of 52 and 38 ft. respectively. Work was in progress on three minor bridges and the brickwork had been completed on these. Platelaying was commenced at Pasir Panjang station-yard. Work was also done on four level crossings and railway are laid through Nelson and New Bridge roads. Favorable progress was made on station buildings and porters' lines at Borneo Wharf and Alexandra Road, and on the coolie lines at 4 m., 15 chains.

ELECTRIC LIGHTING, ETC.

TIENTSIN PRESS LTD., TIENTSIN.—The stationery department of the Tientsin Press, Ltd., now has electric light in use.

SINGAPORE TRAMWAYS.—The Singapore Electric Tramway Company has been granted an extension of the time limit for the completion of its system.

LIGHTING CONTRACT, KUALA LUMPUR.—Messrs. Howarth Erskine, Ltd., of Singapore, have secured the contract for lighting protection at the town hall and sanitary board offices at Kuala Lumpur.

WATERWHEELS, JAPAN.—The Pelton Water Wheel Company, of San Francisco, Cal., reports the sale of a 500-h. p. wheel, through Messrs. Mitsui & Co., for use in an electric light station in Japan.

ELECTRIC LIGHT PLANT, PEKING.—The construction of the electric light plant at the Chinese capital is progressing. The central station is inside the Tartar City but the service, it is understood, will be extended to the Chinese City.

CONTROL OF TELEPHONES, CHINA.—The minister of the Board of Foreign Affairs at Peking has given notice that in future all telephones will be placed under the control of the Chinese Imperial Telegraph Administration, and that no private installations will be permitted in the interior. This, however, does not apply to private installations already established in the treaty ports.

ELECTRIC INSTALLATION, PERAK.—The new electric installation plant at the mine of the French Tin Mining Company, Perak, is a success, the heavy machinery having been splendidly erected and worked by a gas engine with great success. The gas is generated from charcoal at a daily cost of $14. The installation itself cost $70,000 to erect, and has reduced the machinery cost of working from 10 to 2 cts per picul of tin.

WATERWORKS AND IRRIGATION.

WATER SUPPLY SCHEME, KUALA KANGSAR, S. S.—This water supply scheme is said to be one of the cheapest works in Perak? It is estimated to cost under $70,000.

IRRIGATION, PERAK, F. M. S.—On the completion of the irrigation works in this Malay state, next year, the office of the irrigation engineer will be moved to Parit Buntar.

RANGOON WATERWORKS.—The application of the Rangoon Municipal Committee for a loan of Rs. 17,29,000 for the improvement of drainage and water system, and their extension, is published in the *Burma Gazette*.

WATERWORKS, NANKING.—Expectant Sub-Prefect Kung has applied to undertake the waterworks in Nanking, and the Board of Commercial Affairs has ordered the viceroy to report in detail if the gentry is capable of carrying out the project.

YE-U CANAL, BURMA.—The estimate of Rs 35,21,000 including indirect charges, for constructing the Ye-u Canal to take off from the right bank of the Mu River opposite the headworks of the Shwebo Canal, in Burma, has been sanctioned. The tract of country to be irrigated is situated in the Ye-u civil sub-division of the Ye-u District on the E. side of the Mu River. The canal will be 35 m. long, after which it continues a distributory channel for about 11½ m., and there will also be a branch canal for 13 m. The area commanded by the canal will be irrigated annually. The net revenue anticipated annually is Rs.1,89,000 per annum, equivalent to 5.37 per cent on the total outlay.

ARTIFICIAL IRRIGATION IN CHINA.—Mr. James Hutton, a well-known English writer on China's economics, has just published some interesting facts about the Kuan Hsien River system in the Chen-tu Plain. This vast area, of about 5,000 sq. m., is irrigated by the water system Mr. Hutton explains, and is thereby among the most fertile plains of China. It is said by the Chinese that the Chen-tu Plain originally was a vast marsh, through which the waters of the Min River flowed at will; and the casual observer might easily see that the present state of the works has been a gradual evolution, and doubtless many heads and hands have combined, many ways and means have been tried, and much treasure spent in order to regulate the wild and chaotic waters and introduce a system of artificial irrigation.

PENANG (S. S.) WATER SUPPLY.—The municipal engineer of Penang, Mr. L. M. Bell, has reported on the proposed additional water supply there from Batu Feringgi and other streams at the N. end of Penang Island. The report deals practically with three districts—Tanjong Bungah, Batu Feringgi, and Telok Bahang. After giving comprehensive details concerning various streams and sources of supply, the engineer shows that the Sungei Klean, in the Tanjong Bungah District, is the cheapest and most expedient source of tiding over the present difficulty. The present supply may be put down at 4,500,000 galls. daily. According to one estimate we may obtain from Sungei Klean an additional supply of 1,000,000 galls. per day, costing 6 cts. a thousand galls., the capital cost being $330,000. It would be possible to lead the supply from Sungei Klean into the waterfalls. This is the cheapest recommendation. On the other hand, if the municipality wishes to provide for the future too, it may take up the Batu Ferringgi scheme, giving an addition of 2,983,000 galls. costing 11 cts. a thousand galls., the capital cost being $1,853,000. Between these schemes there are two modifications.

BUILDINGS.

BUILDING CONSTRUCTION, UPPER PERAK, F. M. S.—The amount spent on works and buildings in this state during the last year was $11,185.89.

SINGAPORE CRICKET CLUB.—This organization contemplates the expenditure of $32,000 for the extension of its pavilion along extensive lines.

OFFICE BUILDINGS, PEKING.—Large offices at the headquarters of the Lu-Han Railway, Peking, are being built at the corner of Italian and Taichuchan roads.

AMERICAN CONSULATE-GENERAL, NEWCHWANG.—The new building of the American Consulate-General at this post is about ready for occupancy. It is a 2-story brick structure of great dimensions, with an attic. It is solid and artistically designed. The consul-general here is Mr. T. Sammons.

RAILWAY STATION, TIENTSIN.—According to the *China Review*, the raising of the ground for the new city railway station at that place is now almost completed, and the foundations will shortly be laid. On either side of the fine road from the station to the viceroy's yamen a number of new houses are being built by foreigners and Chinese officials. These houses are all of brick, some of them being altogether in foreign style, and some partly Chinese.

next placed in trucks and taken into an adjoining building where the trucks are elevated by means of an endless chain and emptied into ball mills where the grinding commences again. The ball mills grind coarse, and the tube mills, which come next, fine. The powder produced is fed into specially constructed trucks and is wheeled away to the bins, where it is stored until ready for packing. From time to time samples of the powder turned out by the last mill are taken and removed to a room specially set apart for testing.

Bags for putting up the cement are purchased, but the casks are made in the company's own factory.

The motive power for the whole of the works is provided by 5 Babcock & Wilcox water-tube boilers, which work up to a pressure of 180 lbs. to the sq. in. A Green's economizer is fitted so that the smoke and fumes are used in heating, and the water is fed into the boilers at boiling point. A 500 h. p. engine drives the machinery used in treating the raw material, and a 350 h. p. triple-expansion engine for all purposes connected with the cement. In the corner of the engine room are pumps which provide the water for the hydraulic lifts. The supply from these is regulated by the pressure of a piston carrying a weight of 50 tons. Throughout the works the lighting is with electricity.

The company's factory occupies an area of 1,000,000 sq. ft., and in round numbers the plant in use cost $1,000,000. When the factory was first started, at Green Island, the output was 1,000 tons per month; now 4,000 tons per month are produced at the Kowloon factory, and 2,000 tons at the Macao plant, where four kilns are being operated. New rotary kilns, now being installed, will reduce the time required for burning to 1 hr., and they will increase the output by at least 3,000 tons per mo. These kilns will work on an entirely new principle, being round like long cylinders, and will burn the material by having coal dust blown into them.

In the factory during the busy season from 1,600 to 1,800 men are employed, and taking into consideration shipping and the getting of limestone and clay, the industry provides not less than 3,000 men with employment.

CANTON-HANKOW RAILWAY

Viceroy Chang Chih-tung of Canton has reported to the Peking Government, according to an influential Chinese newspaper, on the loan he has raised from Great Britain to restore the Canton-Hankow Railway. The résumé of the report reads as follows:—

J. P. Morgan's syndicate in the United States proposed the restoration of the Canton-Hankow Railway to China by the payment of the sum of $6,750,000 to be paid in three installments within 6 mos. The sum of money required for these payments has been obtained from British authorities as a loan to China bearing interest at the rate of 4½ per cent *per annum* for the term of 20 yrs. without discount. The securities for the loan are the revenues from opium in Hupeh, Hunnan, and Kwangtung, etc.

Besides the above there is said to be a separate agreement which is not reported by the viceroy to Peking, which contains the following items:—

1.—Half of the engineers for the construction of the line shall be British.

2.—In case any further loan is needed for the road the British shall have the first opportunity of subscribing.

It is also understood that the viceroy has consented to have the engineering staff composed of half British and half Japanese engineers.

CONCESSIONS IN CHINA

(Concluded from October.)

[*In its October issue*, THE FAR EASTERN REVIEW *published the greater part of two most interesting and instructive letters on the foreign concessionary situation in China, written in 1898 for the London "Times" by its special correspondent, Mr. J. O. P. Bland, secretary of the Shanghai Municipal Council. The first installment of the correspondence concluded with a reference to the Hankow-Canton Railway, which has just been returned to the Chinese by the American interests which controlled the concession, and the ascension of a predominant Belgian interest in the undertaking. The concluding paragraph was a parenthetical observation of the writer, and read as follows:—"How that Belgian interest was secured in New York space does not permit here to tell, but the episode throws an instructive sidelight on the unseen political undercurrents affecting the question."*—THE EDITOR.]

The British and Chinese Corporation's enterprises may be divided into two groups—viz., the purely British concessions referred to above, and those which are held in combination with capitalists of other nationalities. In the latter class, since the elimination of the Han-kau-Canton line from the list, there are at this moment the Tientsin-Chin-kiang railway and the Nan P'iao coal mines. In regard to the former the German syndicate is understood to be determined to carry out this undertaking, and preparations are being made for the negotiation of the final contract without delay. German interests being preponderant, theirs will, no doubt, be the guiding hand; but nothing is yet known as to any proposed modifications of the preliminary agreement, of which the terms are similar to those of the Lu-han railway. That the German Government is in a position to deal (and does deal) with these questions in Shantung in a manner very different to that of ordinary diplomatic negotiations has been sufficiently proved. In the case, therefore, the British and Chinese Corporation is doubtless justified in waiting upon events and taking the gifts of the Teutonic gods in due season.

In regard to the Nan P'iao coal field, close to the Shanhai-kuan railway, work on this promising undertaking had to be abandoned during the Boxer troubles, and it is only quite recently that the district has quieted down sufficiently to permit the resumption of operation being considered. The corporation shares this enterprise with the Chinese Railway.

As to the purely British concessions at present held by the corporation as above described, there is little to be said, for the simple reason that since 1898 nothing has been done. On May 13 of that year the corporation signed a preliminary contract whereby they undertook to issue a loan not exceeding £3,000,000 (4½ per cent at 82) for equipment, etc., of the Shanghai-Nanking railway. The terms of the contract are not less advantageous than those of the Lu-han and other lines; the cost of construction (estimated after survey) is admittedly much lower, while the financial prospects of the undertaking are certainly better than those of any Chinese railway concession. The district in question, teeming with an industrious people, has not been affected by the recent disturbances, nor has the price of Chinese Government stocks (to quote the usual clause in these contracts) "been affected so as to render the successful issue of the loan impossible on the terms named." If there is any explanation of the Corporation's action it has not been communicated to the Chinese Government; to the latter it is a matter of surprise, frequently expressed, that the corporation should not have withdrawn from these contracts, as it is entitled to do, on the ground of "political or financial crisis in Europe or elsewhere;" but of such intention there has never been any indication. The Corporation has adopted a policy of procrastination but British in tenacity.

Urged to abandon this policy, the Corporation in December last informed Shing Ta-jen that the original contracts had become unworkable, and the draft of an amended agreement, to be applicable to all the purely British concession in the Corporation's hands, was therefore submitted for his consideration in December last. It is to negotiate in the matter of these proposals that ex-Consul-General Brenan, C. M. G., is now en route for China; but unless he is empowered greatly to modify their present terms, his mission is not likely to be successful. Apart from a marked omission to recognize the usual "face saving" conditions as to China's sovereign rights of representation and control, the financial terms named in the amended contract especially those referring to royalties and repurchase, are such that Sheng has declined even to discuss them.

It must be remembered that these concessions can not be alienated from British syndicates; international competition in regard to them is therefore precluded. Under these conditions the Chinese Government is naturally indignant at the nature of the demands advanced by the Corporation, and the latter's recent action in the matter of the restoration of the Pekin-Shan-hai kuan lines has, rightly or wrongly, intensified the bad impression already existing. It is to be hoped that since the British Government have rightly insisted on these concessions remaining in British hands, steps may be taken without further delay to have them carried into effect and to eliminate from them every suggestion of un-British methods. Such is the actual position of Affairs. A few words now, in conclusion, as to the political aspects. I alluded at the beginning of the first of these articles to the apparent belief of the British Government in 1898 that railway construction by foreign Powers in China—and in China it is essentially Powers, not individuals, that stand behind railway construction—might mean "loss of orders" to British industry, but little or nothing to Great Britain. It is only fair to suppose that subsequent events have materially changed this easy-going view and that the serious political side of the question is now adequately realized in Downing-street. Railways in North China mean armed guards to-day; in Manchuria, but for certain unexpected contingencies, they would already have meant permanent occupation of three provinces. From armed guards to exclusive control is but a short step; to differential tariffs and "favored-nation" treatment a shorter step still. Already a "Chinese" railway is being used in Leaotong to carry goods into Chinese territory duty free, *i. e.* to defraud the Chinese revenue of its just dues and to kill the seaborne trade of a treaty port, Newchwang. Already on a German controlled railway of Shan-tung the Chinese Government mails are refused the ordinary privileges and courtesy shown to German mail matter by the Chinese Government elsewhere. The railways of China are and will be so many political claims pegged out by the Powers that build them. By the Anglo-German Syndicate's agreement for the Tientsin-Chinkiang trunk line, approved by both Governments, the British sphere of interest was defined to include the Yang-tsze Valley, the provinces south of Yang-tsze and the province of Shan-si. The spirit of this pact was shown in the German Claim, admitted and maintained, to "an entire monopoly of contract in Shan-tung." Since that date, however, German policy has neglected no opportunity of asserting a general "parity of rights" in the Yang-tsze Valley. The necessity for maintaining and carrying into effect those British concessions which the Government recognized as important four years ago has to-day become a matter of urgency.

As to the actual steps to be taken to this end, the question is one for the British Government to decide. If it is beyond the power of that Government to guarantee foreign loans, there are precedents which appear to afford an adequate solution of the difficulty.

If British syndicates are really unable, in open competition, to finance railways in China under existing conditions, the fact must be accepted, and once established, after proper investigation made, would furnish conclusive proof that the railway undertakings of other Powers are not bona fide commercial enterprises. But the Government which took "official cognizance" of the Peking railway loan of 1899, which was ready to guarantee Japan's military expenses in 1900, *and actually advanced funds to the Wu-chang Viceroy in the same year for his provincial exchequer*, should be able to devise means for lending a measure of effective support to those important concessions which, by its own action, have been proclaimed to the world as exclusively British.

FAR EASTERN ENGINEERING AND CONSTRUCTION NEWS

RAILWAYS, SUPPLIES, ETC.

MASANPHO RAILWAY, KOREA.—This line has been opened to traffic.

KOWLOON-CANTON RAILWAY.—It is understood that British engineers will make the survey of this line.

PEKING-KALGAN RAILWAY.—Tenders are invited for the first section of this line, from Fengtai to Nankou.

TIENTSIN-CHINKIANG LINE.—An effort is now being made to induce the Chinese Government to build this railway instead of the Anglo German enterprise

PEKING KALGAN RAILWAY, CHINA.—The machinery and materials for the building of this line are to be imported free of duty, the request being granted by imperial rescript.

CHINESE EASTERN RAILWAY, MANCHURIA.—Japanese troops have formed a garrison for the protection of this railway. This duty is under the direction and control of the Governor-General of the province.

ANOTHER IMPERIAL RAILWAY, CHINA.—Owing to the frequency of the Empress Dowager's visits to I Ho Yuan, it has been decided by the Chinese Government to connect this place with Peking by rail.

FOREIGN RAILWAY SHOPS BARRED, CHINA.—No foreign railway shops are to be allowed at any of the stations along the Chentow-Hsihchiachuang Railway, and those already existing at these places are to be closed forthwith.

PEKING-HANKOW RAILWAY.—According to the native papers of Shanghai the opening of the Peking-Hankow Railway, with festivities at the new bridge over the Yellow River, was set for the 15th day of the current month.

BIG PURCHASES OF MATERIAL FOR JAPAN.—Six Japanese railway representatives recently arrived in Chicago, *en route* for England and Europe. It is reported that they will purchase supplies to the value of £6 000,000, chiefly from American and British manufacturers.

LUKOKIU-HANKOW LINE.—The railway from Lukokiu to Hankow, China, is nearing completion, but owing to the importance and magnitude of the work of bridging the Whang Ho, nothing will be done in this matter until after an inspection of the proposed site by high government officials.

ANHUI-KIANGSI RAILWAY, CHINA.—It has been suggested that money for the construction of railways between Anhui and Kiangsi might be raised by means of lotteries, but a censor has pointed out that winning numbers might fall into the hands of foreigners so the idea is not likely to be carried out.

FORMOSAN RAILWAY.—A telegram from the Formosa Government, according to the *Hongkong Telegraph*, states that the construction of the railway across the wild tract of country in the Giran District has been completed. The total length of the line is about 14 m , and construction was begun in August, 1904.

NIPPON RAILWAY, JAPAN.—The Nippon Railway has been compelled to withdraw 100 freight cars from the coast line, on which 250 cars had been hitherto used for the transportation of coal. Of the remaining 150 cars, 135 are to engage in transporting coal to orders under special contract, so that only 15 cars remain for carrying coal for the use of the general public.

PROPOSED JAPANESE RAILWAY TO KIRIN.—Japan having obtained, as part of the terms of peace, the privilege of a railway between Kirin and Chanchun, it is pointed out at Tokyo that the distance between these points is about 90 m., and that the districts on either side are fertile. Gold dust and various metals, soda and coal are also found in considerable quantities.

TIENTSIN-CHIKIANG RAILWAY.—A Peking dispatch to a Shanghai native paper says that China has referred to the British minister at Peking a memorial regarding the cancellation of the Tientsin-Chikiang Railway Concession. The latter has informed China that the concessionaries are both British and German, and that should the German minister agree to its cancellation, he would have no objection.

RAILWAY IN FUKIEN, CHINA.—The capital of the proposed railway between Foochow and Amoy, extending about 600 Chinese li, will be Tls.8,000,000. The scheme is that the capital shall be supplied by the Chinese. Though there are several French capitalists in Foochow who are trying to get the concession, the metropolitan officials who are natives of Fukien have been able to get their scheme carried out without foreign assistance.

DEVELOPMENT OF WHAMPOA, CHINA —For the purpose of making Whampoa a business center and constructing railroads thereto. His Excellency Chang Yat Shi, Minister of the Board of Commerce, who was formerly a prominent merchant in the Straits Settlements and had amassed an immense fortune, has gone to the Straits with a view to raising funds to carry out the scheme. It is reported that $5,000,000 will be required for the development of the place.

RAILWAYS IN KOREA.—Railways are springing up all over Korea. The latest scheme comes from the Province of North Chulla where the arrangements for constructing a line between Kunsan and Chonju are said to be progressing satisfactorily. A joint company with a capital stock of -Y-300,000 is to be formed, and the work of construction will begin as soon as official permission has been granted. The embryo company announces in advance that it expects to pay a dividend at the rate of 20 per cent.

CHINA AND THE MANCHURIAN RAILWAY.—H. E Na Tung, Chu Hung-chi, and Hsu Shih-chang have memorialized the Throne to the effect that they consider the Chinese Eastern Railway to be the backbone of the three eastern provinces of Manchuria. They, therefore, consider it necessary that the railway should be restored entirely to China, and they quote, as an instance of the way it should be done, the example of the Chihli public loan raised by Viceroy Yuan Shih-kai. They suggest, therefore, the flotation of another domestic loan for this purpose. The Peking Government has ordered them to give a more detailed report on the matter.

ELECTRIC LIGHTING, TRACTION, POWER, ETC.

YOTSUYA-TO-AOIMACHI ELECTRIC LINE, JAPAN.—This section on the Tokyo Electric Railway has been opened to traffic.

AMALGAMATION OF ELECTRIC LIGHT INTERESTS, JAPAN.—The Hokkaido Electric Light Company has amalgamated its interests with those of the Sapporo Electric Light Company.

ELECTRICALLY DEVELOPED WATERPOWER.—The total waterpower used at the present time for the production of electricity is about 2,000,000 hp. Japan has 3,450 hp. and India 7,050.

SIAM ELECTRIC COMPANY, BANGKOK.—This corporation has purchased a 500-kw, 550-volt, direct-current, 2-stage Curtis steam turbine alternator, several direct-current pump motors and a switchboard.

TELEPHONE EXTENSION IN KOREA.—A telephone will soon be established between Masanpho, Taiku, Gensan, and Chinnampho, and between Mokpho, Kunsan, Kangkyong, Kaisong, and Phyongyang during the next year.

J. G. WHITE & CO., LTD.—This branch of the engineering and contracting firm of New York, London and Manila, is busy just at present with new electric traction work for the London County Council, involving $800,000 gold.

ELECTRIC RAILWAY COMPANY, MOJI.—Nine prominent Japanese capitalists have applied to the Tokyo Government for permission to organize an electric railway company at Moji with a capital of -Y-700,000, with the object of transporting passengers and goods between Moji and Kokura.

WIRELESS TELEGRAPHY, CHINA.—The Chinese Government is reported to be arranging with a foreign engineer to put up wireless telegraphy at Wuchang, Shanghai, Nanking, Peking, and Tientsin. There are a number of native students studying the system at Peking and also at Tientsin.

OSAKA ELECTRIC LIGHT COMPANY, JAPAN.—This company is building a branch at Sasebo and intends to supply the town with about 6,000 lights. At Osaka and Sakai the number of lights supplied by the company is rapidly increasing, the growth in one month recently amounting to 1,500.

CIRCUM OUTER-MOAT TRAMWAY, TOKYO.—The Yotsuya-Akasaka section of the circum-outer-moat tramway (Tokyo Electric Railway) has been opened to traffic, the circle being now completed with the exception of a short distance between Toranomon and Aoizaka, for which the company issues transfer tickets.

LIGHTING PLANT FOR FORT WILLIAM MCKINLEY, MANILA, P. I.—The Secretary of War at Washington has approved the expenditure of $18,000 for the erection of an electric lighting plant for Fort William McKinley. Plans and estimates are soon to be given to contractors by the chief engineer officer of the Philippines Division so they can bid on the work.

COOPER HEWITT LAMP IN JAPAN.—An exhibit was recently given of the Cooper-Hewitt lamp to the Japanese Emperor. The occasion was the graduation exercises of the Tokyo Imperial University. The Emperor attended the ceremony as an exceptional case, as he very seldom goes out of his palace. The head professor of electrical engineering, Professor H Nakano, a post-graduate of Cornell University, class of '89, had the honor of explaining the workings of the lamp before the Emperor, which was supplied by the Japanese Engineering and Contracting firm of Messrs. Takata & Co., who are agents for the Westinghouse Electric and Manufacturing Company in Japan.

AMERICAN ELECTRICAL SALES, JAPAN.—The General Electric Company has received orders from Messrs. Mitsui & Co., Tokyo, Japan, for one 3-phase, revolving-field, 200-kw, 60-cycle, 2,300-volt generator and one 110-volt, 7-kw direct-current marine generating set with switchboard. Another order for the Kosaka Copper Mines, Japan, consists of one motor-generator comprising a 100-hp. 3,120-volt induction motor, direct connected to a 75-kw, 550-volt, direct-current generator. In addition to the above, a recent order includes 28 m. of single-conductor, lead-covered wires of various sizes, and 22 m. of stranded lead-covered cables of various sizes. Messrs. Grant & Co., Ltd., are Manila agents of the General Electric.

PACIFIC CARRYING TRADE.—Mr. S. T. E Gibbon, one of the vice-presidents and general counsel of the San Pedro, Los Angeles, and Salt Lake Railroad Company, has sailed for the Orient from San Francisco to consummate arrangements, it is believed in American railway circles, for a steamship line from San Pedro in Southern California to China and Japan It is further reported that the proposed steamship line will be controlled entirely by United States Senator W. A Clark, of Montana, and be operated in connection with the Clark railroad system, and entirely independent of any similar line which Messrs. Harriman or Huntington may have in mind.

CABLES TO JAPAN.—The Formosa cable route to Japan has been working slowly of late. In normal times there are four such routes to Japan. Two of them, from Vladivostok to Nagasaki and from the southern extremity of Korea to Japan, have been closed in consequence of the war. A direct cable from Shanghai to Nagasaki has been carrying nearly all the messages since the beginning of hostilities, and there is also a roundabout route *via* Formosa and the Liu Kiu Islands from Foochow, China, to Ohama, Japan. The Shanghai-Nagasaki cable was recently interrupted by typhoons, and for a time dispatches were received for transmission by steamer from Shanghai to Japan, 500 m away

STEEL SCREW STEAMER *Clarerhill*.—The steel screw steamer *Clarerhill*, built by Messrs. Craig, Taylor & Co., Ltd., Stockton-on-Tees, to the order of Messrs. E. Heslehust & Co., London, has been given a successful trial trip at sea. The vessel is of the following dimensions:—369 ft. by 49 ft by 28 ft. 9 in. moulded. She is built of steel to the highest class in Lloyd's under special survey. The engines have been constructed by the North-Eastern Marine Engineering Company, Ltd., Sunderland, having cylinders 26, 42 and 72 in. in diameter, by 48 in. stroke, with three large steel boilers working at 180 lbs. pressure. Over a course of 6 m. a speed of 12½ knots was maintained. The vessel has loaded for the Fart East under charter by the Nippon Yusen Kaisha.

PORT WORKS, DREDGING, DOCKS, ETC.

THE DINDINGS, STRAITS SETTLEMENTS.—The cost of survey of the Dindings is estimated at $10,000 of which $10,000 will be expended next year.

RECLAMATION AT CANTON.—There is a movement on foot in Canton, China, which has for its object the raising of funds for reclamation works. It is estimated that from Chin-Loong-How to the Loong Mo Temple, 10,000 *tseng* (Chinese acres) of land could be reclaimed and another 10,000 *tseng* from the Loong Mo Temple to Wongsha. The total amount of money which this scheme is expected to realize is $2,000,000.

KIANGNAN DOCK, SHANGHAI.—The new Kiangnan dock is making rapid headway and should be finished and ready for business about the date this issue of THE FAR EASTERN REVIEW goes to press. New machine shops, etc , are also being erected, and when completed the new work will be able to undertake any class of shipping construction. The new dock will have a length on top of 365 ft., on blocks 325 ft., and a width on sill of 19 ft.

NEW DOCK, HONGKONG.—A contract for three patent slipways to be laid down at Hongkong has been placed with Messrs. S. and H. Morton & Co., of Leith. One of these slipways is to be capable of taking up vessels 400 ft. long by 40 ft. beam and of 2,700 tons weight. The other two are for vessels 290 ft. in length by 50 ft. beam and weighing 2,000 tons. All are to be driven by electric power. The patent slipways are designed for the new dock which Messrs. Butterfield & Swire are building at Quarry Bay.

SHIPBUILDING, MARINE, ETC.

JAPAN'S NAVAL CONSTRUCTION. -The firm of Krupp, at Essen, has received from the Japanese Government an order for a supply of sheet-iron and guns for the Japanese fleet. The value of the order is said to be very large.

STEAMSHIP SERVICE EXTENSION, JAPAN.—The Nippon Yusen Kaisha will soon open a new steamship service between Japan, Singapore, and Java. The manager of the Hongkong branch of the company is now visiting the ports mentioned to make the necessary arrangements.

LAUNCH OF STEAMER HUICHOW.—Scott's Shipbuilding and Engineering Company, Greenock, have launched the steamer *Huichow*, the first of a fleet of six ordered from them by the China Navigation Company, London. The dimensions of the vessel are:—Length 267 ft., breadth 40 ft., depth 22 ft. 6 in., and carrying capacity 2,600 tons. The machinery will be supplied by the builders.

NEW NORDDEUTSCHE BRANCH LINE IN ORIENT.—This new branch steamship line will be known as the Austral-Japan Line. The point of departure will be Sydney, and outwards the ports of call will be Herbertshohe, Matupi, Simpsonhafen, Friedrich-Wilhelmshafen, Hongkong, Yokohama and Kobe, which will be the terminus Homeward from Kobe, Moji, Hongkong, and Friedrich-Wilhelmshafen will be called at.

FAR EASTERN ENGINEERING, CONSTRUCTION COMMERCIAL AND FINANCIAL, NEWS

PERSONAL.

TS'AI NAIHUANG, a Szechuan *taotai*, has been appointed adviser to the *Shangpu*, or Chinese Board of Commerce.

MESSRS. ARNHOLD, KARBERG & CO. have been appointed local agents of the Russo-Chinese Bank, at Newchwang, Manchuria.

MR. CHARLES S. LEAVENWORTH, the newly appointed deputy and vice-American consul at Nagasaki, has assumed his official duties.

MR. WILBUR T. GRACEY, once in charge of the American consulate at Foochow and latterly that at Nanking, has been appointed vice-consul at Hongkong.

MR ROGER S. GREENE, American vice-consul at Kobe has been appointed commercial agent at Vladivostok, succeeding Mr. R. T. Greener. The post is equivalent to a consulate, the Russian Government not allowing consuls at this Siberian port.

MR. J. H. WALLACE, chief engineer of maintenance of way of the Southern Pacific Railway, who was investigating the railway possibilities of the Philippines in the Harriman interests, has now gone to Korea and Manchuria as a sequel to Mr. Harriman's recent visit to those countries.

TAOTAI JEME TIEN-YOU, a graduate of Yale University, Sheffield Scientific Department, A. M. I. C. E., London, and superintending engineer of the Peking-Changchaikou (Kalgan) Railway, now in course of construction, has been appointed by the Chinese Board of Commerce as special adviser on railway matters to that board.

MR. DE RIJKE, a well-known civil engineer, has accepted an invitation from the Chinese Government to come out to the Orient from Europe and take charge of the Whangpu conservancy operations at Shanghai, for the improvement of the Whangpu River and Woosung Bar. It is understood that the Chinese Government has promised to appoint a French and a Japanese civil engineer to assist Mr. de Rijke.

MR. HAMILTON WRIGHT, special commissioner for the United States Commercial Museum in the Orient, has arrived in the Far East and is at present making an extensive tour of the Philippine Islands. He will make a report of the agricultural condition of the Philippines and furnish newspaper articles to a syndicate of American papers and magazines. He is authorized to gather such information and data, statistics and exhibits as will assist in bringing about closer relations between the Orient and the Pacific Coast of America. The exhibits will all be shipped to the Pacific Commercial Museum with the accompanying data, so that any merchant and manufacturer may see what goods are consumed in the Islands and what they are sold at and exactly how they are put up for customers here, as well as other valuable information. He will also visit China, Japan, Java, Sumatra, and the Straits Settlements with the same object in view.

RAILWAYS, SUPPLIES, ETC.

SOOCHOW-HANGCHOW-NINGPO RAILWAY, CHINA.—It is announced that the Peking Government has asked the British minister to fix a date for the cancelling of the Soochow-Hangchow-Ningpo Railway concession.

ROYAL RAILWAYS, SIAM.—The construction of the Petriew branch of the Royal Siamese Railways, officially known as the "Eastern Line," has been commenced.

PEKING-KALGAN LINE.—The chief engineer of this railway has assessed the cost of construction at Tls. 7,291,800, and this has been reported to the Peking authorities for approval.

PROJECTED CHENGTEFU-PEKING RAILWAY.—The Military Governor of Ye-he, Sungshou, is having a survey made of a proposed railway from Chengtefu to Peking. There are rich repositories of gold and silver in this district.

ANNAM RAILWAY EXTENSION.—It is reported that the Chinese Government has granted a French concession for the extension of the Annam Railway to the Yunnan boundary, and that construction is to begin immediately.

SINTEHFU-PEKING ROUTE.—The commandant of Iho is making a survey of the route from Sintehfu to Peking. This is at present an important trade route, and, owing to the mineral wealth in its vicinity, he is of opinion that the construction of this railway should be proceeded with at once.

TRUNK RAILWAY FOR CHINA.—According to London advices the Chinese Government is planning the construction of a trunk railway which shall traverse the 8 central provinces of the empire, and shall connect Canton with Peking. The Canton-to-Hankow Railway form the S. part of the line.

FRENCH AND CHINA RAILWAYS.—It is reported that the French minister at Peking is urging the Chinese Government to grant to French subjects railway concessions at least to the extent that they have already been granted to British subjects. The viceroy at Canton is opposed to the present scheme for the Canton-Kuangchouwan Railway, which is partly a foreign enterprise. The French concessionaries are taking steps to safeguard their interests.

SHANGHAI-NANKING RAILWAY.—The first 12 ms. of the Shanghai-Nanking Railway, from Woosung to Naziang, have been formally opened to traffic. Grading on this section was begun about 1 yr. ago. It is single-tracked, nearly straight, and has only one small bridge and a few culverts which have made it very easy of construction. The cost must have been moderate, although the Chinese charge this company with gross extravagances.

PEKING-HANKOW RAILWAY.—The journey from Peking to Hankow over the railway which has just been completed takes 36 hrs. This line heretofore known as the "Lu-Han (Lu-know-ch'iao, referring to the classic bridge of Marco Polo, about 15 ms. SW. of Peking, the "Han" standing for Hankow) will from now be called "Ching-Han" Railway ("Ching" meaning capital). The total cost of construction has been Tls. 50,000,000.

HSINMINTUN-MUKDEN RAILWAY.—The Tartar General of Mukden and Governor-General of Fengtien Province, has lately been in constant telegraphic communication with the Board of Foreign Affairs at Peking, with reference to the projected extension of the railway from the town of Hsinmintun towards Mukden, work on which was interrupted by the war. He has informed the board that work on the extension should be resumed immediately.

CHINESE EASTERN RAILWAY, MANCHURIA.—The length of the Chinese Eastern Railway from Changchung to Port Arthur, which has been acquired by Japan, is over 300 ms., and the working expenditure of this section amounts to Y-220,000 per mo., maintenance-costing-Y-15 per m. per day. At present, says the *Jiji* it is very difficult to obtain a revenue of only-Y-120,000 per mo., and by working the railway the Japanese Gorvernment, at present, will lose at least-Y-100,000 per mo.

SHANTUNG RAILWAY.—The offices and line of the Shantung Railway have been handed over to the Chinese. This line—from Tsingtao to Chinan, the provincial capital of Shantung—was completed by the Germans in 1903, and several trains a day are now running over the stretch of about 250 ms. Its earning capacity quickly showed excellent results, both as regards freight and passengers, and it is estimated that it will shortly supply Weishieu, Chouts'un and Chinan, the largest 3 trading centers in the province, with something like $5,000,000 worth of foreign freight *per annum*. The Chinese Government has already opened these 3 places to international trade, and, in the near future, the railway ought to absorb the whole trade of central and N. Shantung—provided, of course, as the *Hongkong Telegraph* explains, rates are kept lower than water transport rates from Chefoo.

BRITISH AND CHINESE CORPORATION.—Commenting on the present agitation for Chinese control of the railways of the empire, the *Nanfangpao*, a prominent Chinese newspaper, says:—"The British and Chinese Corporation has not violated any of the provisions of the agreement as in the case of the American-China Development Company, and so it is difficult to take action on this score with a view to restoring the railway concession to the Kiangsu people. The energy of the agitators, therefore, is now directed to the early redemption of the railway. In regard to this, we wish to point out that the agreement gives China the right to redeem the bonds at 102½ after 12 yrs. and at par after 25 yrs. Provided they have the necessary funds—which so far they have no knowledge how to raise, for the railway cannot be expected to pay off itself within so short a time—for the redemption of the bonds and net profits debentures after 12½ yrs., they can have the control and management of the railway back in their hands without any trouble. We sincerely hope, therefore, that the agitators will study the question thoroughly and not be simply led by blind patriotism without knowing what they are doing. Wild and eccentric statements or actions can only injure their cause. Striving for the restoration of the railways is laudable, but it is more important they should at the some time bend their attention to the raising of capital for the continuance and development of the work."

ELECTRIC LIGHTING, TRACTION POWER, ETC.

STEAMSHIP INSTALLATION, SINGAPORE.—Messrs. Riley, Hargreaves & Co., Ltd., Singapore, have the contract for the electric lighting of the Straits Steamship Company's vessel *Sappho*, including the supply of the generating plant, electric fans, etc.

BANGKOK TRAMWAYS.—The exact length of the Siamese Tramway Company's lines, Bangkok, is 20-661 killometers, and the total cost has been Tcs. 1,580,000, or Tcs. 71,052.5 per killometer, which compares very favorably with the usual cost of construction elsewhere.

CENTRAL TELEPHONE BUILDING, MANILA.—The building which is to be constructed for the new telephone central in Manila, on the plot of ground recently leased from the government by the telephone people, will be built by the Atlantic, Gulf and Pacific Company. The building will be a 2-story construction of steel and cement and will cost $12,800. The only other bidder for the contract was The B. W. Cadwallader Company of Manila.

NEW TELEPHONE SYSTEM, MANILA.—The Philippine Islands Telephone and Telegraph Company has commenced the construction of its telephone system in Manila. The contracting concern is the Manila Construction Company of which Mr. H. Thurber is manager. It is understood that all the underground conduit work will first be constructed, and already this is being pushed with rapidity along the Bagumbayan Drive. The site for the central station is also being cleared. It is necessary here to raze a substantial building that has been standing there for years to make place for the modern concrete and steel structure which will house the operating appliances and general offices of the telephone company.

MESSRS. ARNHOLD, KARBERG & CO.—In a recent issue of THE FAR EASTERN REVIEW—the October number—this paper was made to say that Messrs. Arnhold Karberg & Co., whose commercial enterprise cover the most important trade centers of China, are agents for the Marconi system of wireless telegraphy. This was an error. The firm represents the Wireless Telegraphic Company of Berlin (System Telefunken), which it claims to be far ahead of the Marconi system. THE REVIEW takes pleasure in setting this slight inaccuracy right in justice to the business interests of Messrs. Arnhold, Karberg & Co.

DIRECT CABLE TO JAPAN.—The Commercial Pacific Cable Company, through its president, Clarence H. Mackay, announces that it has secured the necessary concessions to enter Yokohama, Japan, and Shanghai, China. M. Takahira, the Japanese minister to the United States, has affixed his signature to Japan's agreement with the Commercial Pacific Cable Company for landing rights at Yokohama. An agreement for landing rights at Shanghai was signed by China several weeks ago. The cable connections with both Japan and China will be made by extending the present lines of the company, which run from San Francisco through the stations at Honolulu and Guam to Manila. Japan will be reached by laying a cable from Guam in the Pacific Ocean direct to Yokohama. The cable to China will be laid from Manila to Shanghai. Mr. Mackay says the company will proceed at once with the manufacture and laying of these two cables, which will take several mos. The Commercial Pacific Cable Company will then pierce the Far East at three points, namely, the Philippines, China, and Japan. With the cable which has just been completed to Newfoundland, plus a fifth cable to Europe, and the cable from Guam to Japan, and one from Manila to Shanghai, the company will have a system extending over two-thirds of the way around the globe.

WATERWORKS AND IRRIGATION

WATERWORKS, MOJI, JAPAN.—Waterworks to cost $540,000 are to be constructed at Moji.

WATERWORKS AT CANTON, CHINA.—The construction of the waterworks system for Canton has just been commenced. Three engineers from Shanghai are in charge of the work.

HONGKONG WATER SUPPLY.—The control of the Hongkong water supply by the "rider" main system is being rapidly pushed ahead. Another extensive area in the W. part of the city is now being operated by the system.

GRAVITY WATER SUPPLY, MANILA, P. I.—Mr. J. F. Case, M. Am. Soc. C. E., Chief Engineer, Department of Sewer and Waterworks Construction, Manila, reports that the construction of the new wagon road, along the line of the pipe line and conduit of the gravity water supply is practically finished. About 800 men were employed on the work, which was done by day labor. In the gorge below the site of the new dam the road required some heavy rock work, but this was completed about December 10th. This opened the road throughout its entire length.

CANTON'S WATER SUPPLY.—The Canton (China) correspondent of a Shanghai paper says:—"Taotais Chu and Chan have been appointed to represent the government in looking after the interests in the Canton waterworks, and His Excellency Chang Yat Shi will represent the other shareholders. It is reported that a foreign firm approached the Board of Commerce recently, submitting a scheme and other regulations and expressing a desire to put in some capital. The firm, it is reported, was prepared to subscribe $1,000,000 or $500,000, whichever amount suited the Chinese shareholders. The Board of Commerce replied that as sufficient money could be obtained from the Chinese it was not necessary to borrow from foreigners. The firm also recommended several engineers for the works to which the board replied that the viceroy already wired to a certain engineer at Shanghai and that the gentleman was expected in a day or two. The preliminary survey has been completed, and it is estimated that at 2 *cash* for 2 buckets of water, the capital would yield 500 per cent annually."

BRIDGES

BRIDGE SITE, MANILA.—A stretch of land for the construction of the foundations of the new Ayala Bridge, to span the Pasig River, has been expropriated by the government. The Atlantic, Gulf and Pacific Company are the contractors.

"BIRTHDAY BRIDGE," SIAM.—Messrs. Howarth Erskine, Ltd., of Singapore, made the ironwork for the new "Birthday Bridge," Bangkok. The design is reported to be a novel and tasteful one, and forms a good example of the irnworkers' art and handicraft. This year the bridge was built out Sapatoomrd, near Prince Svasti's palace.

PUBLIC WORKS

RECLAMATION OF WASTE LANDS, CHINA.—A central office having charge of the reclamation of waste lands will soon be established at Peking. The staff will be composed of officers appointed from the various imperial boards.

THE FAR EASTERN REVIEW

COMMERCE ✪ ENGINEERING ✪ FINANCE

VOL. II. MANILA, P. I., AND SHANGHAI, JANUARY, 1906. No. 8.

CONSTRUCTION OF THE CANTON-SAM SHUI BRANCH OF THE CANTON-HANKOW RAILWAY

(By C. W. MEAD, C. E., Late Engineer-in-Chief of the Canton-Hankow Railway)

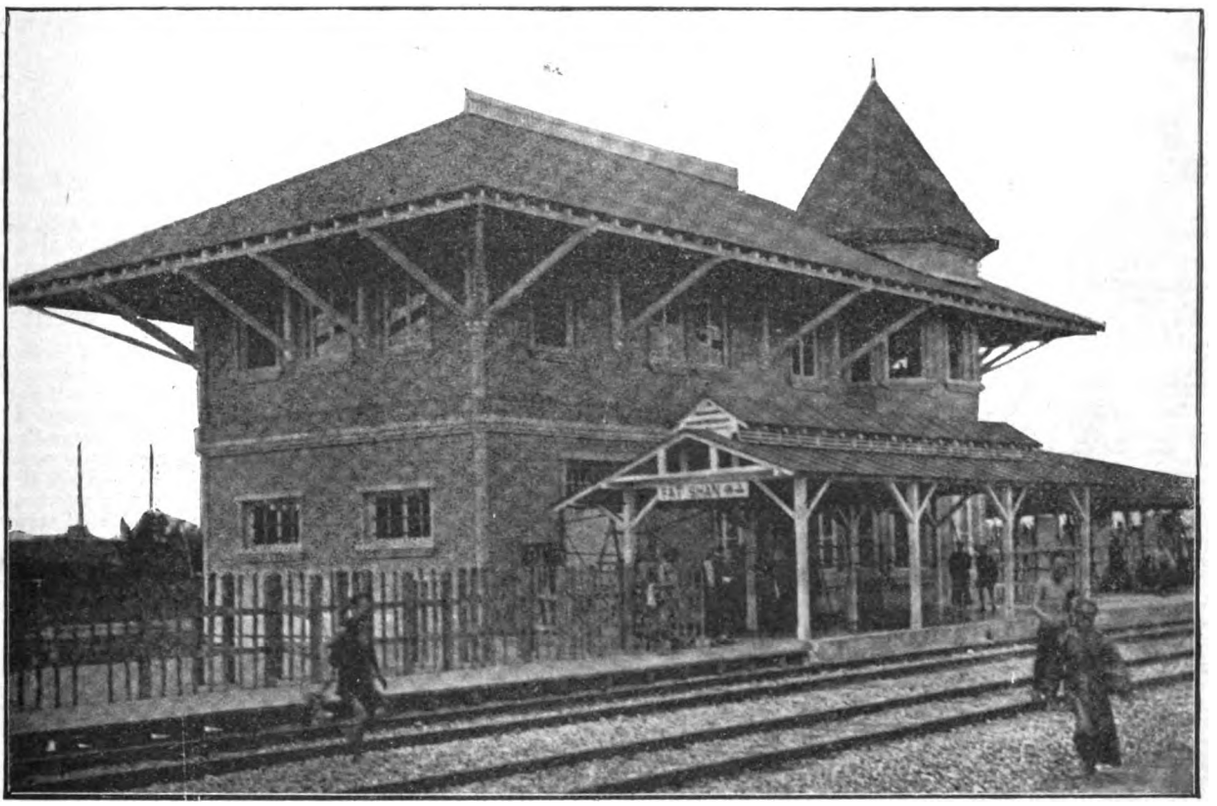
The main line of the Canton-Hankow Railway will connect Canton, the great S. China metropolis, with Hankow, the most important of all interior Chinese cities.

Leaving Canton the line runs N. up the Pearl River about 30 ms. where it strikes across to the Pei River following the valley about 100 ms. to Shao Chou, thence up the Wei River to near its headwaters, where it crosses a range of mountains onto the headwaters of the Lei River which flows N. into the Siang and Yangtsze; then following the Lei, Siang and Yangtsze valleys to Wuchang on the S. side of the Yangtsze opposite Hankow. The line traverses a country rich in both agricultural and mineral resources, and thickly settled except in the mountainous districts and some of the flooded sections of the Yangtsze and Siang River valleys.

Approximately the main line is 750 ms. in length, and there are about 150 ms. of branches, of which the most important is the Canton-Sam Shui line which has been constructed and in operation for 2 yrs. An important feeder leading from Ping Hsiang to Chu Chou, about 60 ms., has been constructed, and is now in operation. This will bring the products of the Ping Hsiang coal mines, owned and operated by H. E. Sheng Kung Pao, to Chu Chou, where they will be transhipped to the Han Yang Iron Works also owned and operated by Sheng.

SURVEY OF THE LINE.—A reconnoissance survey was run over the entire line by Wm. Barclay Parsons in 1898-9. Since then preliminary surveys have been run from Canton N. nearly 150 ms. and 100 ms. of same permanently located. On the N. end preliminary and location lines have been run from Yo Chow, at the mouth of the Siang River, to Chu Chou, the point of intersection with the Ping Hsiang branch. This is a distance of 150 ms., and is probably the portion which will be first constructed. This section, in connection with the Ping Hsiang-Chu Chou branch will deliver coal and coke to the comparatively deep water navigation of the Yangtsze whence it will be distributed along the lower Yangtsze by boat.

The Canton-Sam Shui branch for the first 14 ms. out from Canton runs over a flat country of alluvial formation and entirely covered with rice fields, cane, and vegetable gardens. This country is cut by many tidal streams some of them being 125 ft. wide and very deep. Beyond Chai Bin the country assumes a broken aspect, and many low ridges separate the various valleys across which the line runs. These ridges are mostly of soft sandstone, only one reef of hard rock being found, and that was a black basalt at Wong Ting See, 3 ms. E. of Sai Nam. The entire country except the ridges would be subject to overflow except for dykes which are about 7 ft. near Canton, while at Sam Shui the main dyke is 30 ft. high. All the streams crossed are navigable for some kind of craft at some time during the year, and this fact forced an ascending and descending grade at the principal crossings.

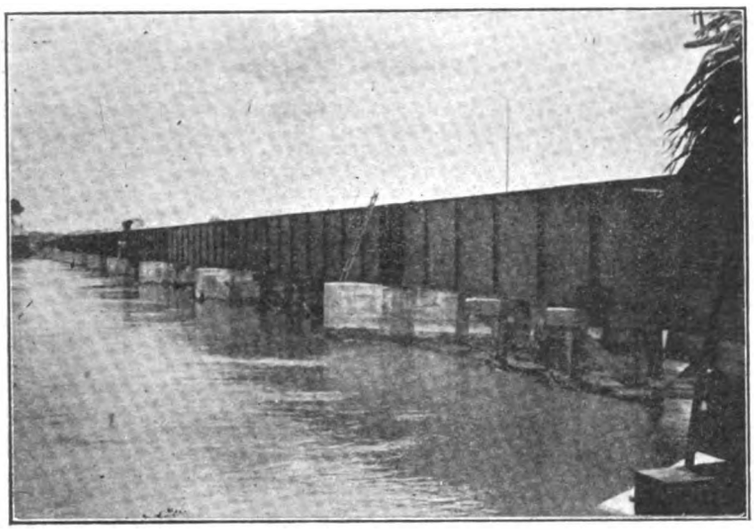


FAT SHAN STATION, THE ONLY PERMANENT STATION ON THE CANTON-SAM SHUI DIVISION

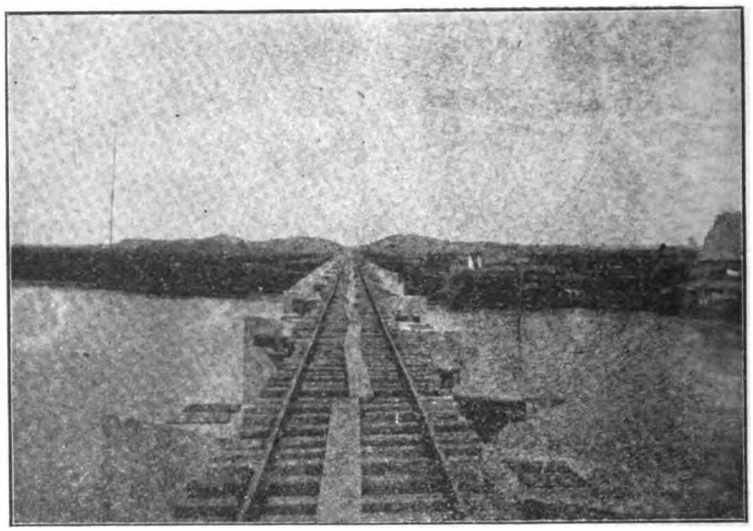
The first 10 ms. of this branch to Fatshan is double-tracked and the last 20 ms. is single-tracked. The double-tracked portion has 13 ft. centers and 31 ft. roadbed; is laid with 75-lb. steel rails on steel ties and ballasted with broken stone on the Canton end and sand on the Fatshan end. The single-tracked line has a roadbed 18 ft. wide, is laid with the same weight rails upon Japanese oak ties, and is entirely sand ballasted.

The alignment is very good having a maximum curve of 4° and none over 3° between Canton and Fatshan, except the 6° curve of 10°3 at Fasthan, which was put in order to place the line close to the town. The

(Continued on page 202.)



SAINAM BRIDGE, SHOWING PIER CONSTRUCTION



SAINAM BRIDGE; TRACK LAID OVER ON FALSE WORK

CONSTRUCTION OF THE CANTON-SAM SHUI BRANCH OF THE CANTON-HANKOW RAILWAY

(Continued from page 199)

maximum grade is 5.10 of 1 per cent and is used at five stream crossings between Canton and Fatshan and several times over low ridges between Fatshan and Sam Shui.

ENGINEERING DIFFICULTIES.—The only engineering difficulties on this division are the bridge foundations, which were made by first driving piles to a depth sufficient to give a bearing power of 12 tons on each pile. The required resistance to penetration was usually obtained in a strata of coarse quartz sand which lay from 30 to 50 ft. below the surface and varied from 3 to 7 ft. in thickness. In some cases a bearing power of only 6 or 7 tons could be obtained, in which cases special designs were made by putting in more piles and covering more ground. The piles were cut off below water-level, all the silt taken out from between them, and coarse stones were rammed in to within 2 ft. of their tops upon which concrete was built to sub-grade and granite bridge seats put on. The spans are of 10, 15, 20, and 30 ft. deck girders, and 40 and 60 ft. through girders. There is one bridge across the Sainam River with 96-ft. spans and three other bridges on the line 120 ft. long, which have one 60-ft. and two 30-ft. girders. Several box and arched concrete culverts were used, and arched road crossings below grade. Short spans were used for economical reasons as steel laid down at the bridge sites was costly, while the cost of foundations was low owing to cheap material and labor. The ease in handling short spans with unskilled labor was a large factor, and all these reasons tended to an opposite economic condition to that found in Europe and America.

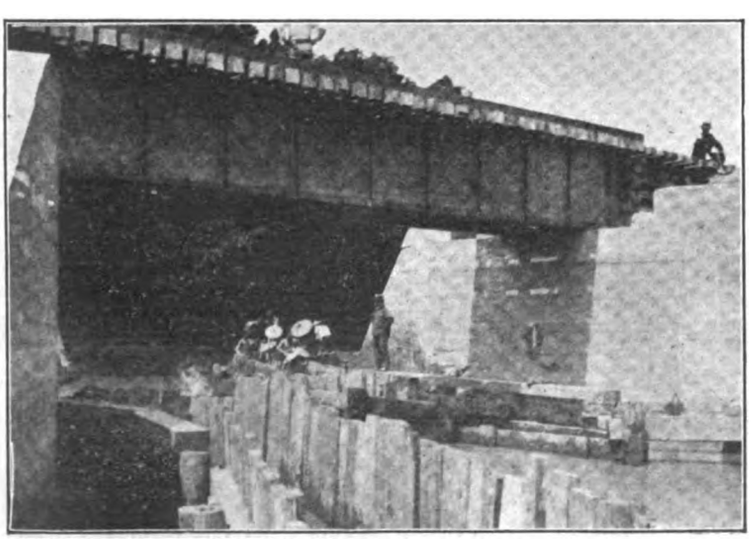
Only one permanent station was constructed and that at Fatshan. All others are small and temporary and put in at an average distance of 2 ms., thus giving the traffic an opportunity to develop and decide where stations were necessary. The Fatshan Station is a fairly handsome 2-story structure built of brick and wood and the cost was about $15,000 Hongkong currency.

A blacksmith and repair shop was established at Shek Wei Tong, which is complete enough to make all necessary assembling of rolling stock for the division and keep it in repair. This shop is entirely operated by Chinese workmen.

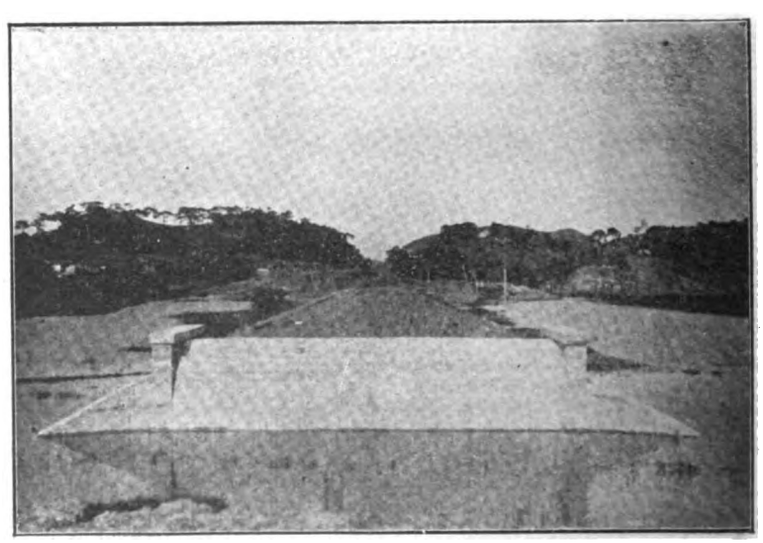
SUPERSTITION AND IGNORANCE MENACE CONSTRUCTION.—Many difficulties were encountered in the construction of this branch mainly on account of the superstition of the people and the profound ignorance of the workmen, most of them never even having heard of a railway much less seen one, but with the blandlike simplicity of the Chinese there was no trouble in finding wouldbe contractors who would undertake any kind of a contract for any price and agree to complete it in any time required. Experience taught the engineers that the Chinese were able to contract for earth embankments and shallow cuts, while all other work was more economically performed by using foreign foremen or letting the work to foreign contractors. At best it was slow and costly as all the workmen had to be first taught, and there were no experienced foremen or reliable foreign contractors available. The building of this line was not only a school to the Chinese employed but it taught the engineers in charge how to take advantage of the peculiar conditions in China. That this schooling was valuable was clearly proven by the greatly reduced cost of the work performed on the main line after the completion of the branch.

As an illustration of the difficulties encountered on account of the ignorance and superstitions of the people, when the line was permanently located to Sam Shui a strong and vigorous protest was entered by the inhabitants of a little village called Too Yuen Kong on account of a 15-ft cut through a small hill. In this protest the people said that a tiger lived in that hill and it was the guardian of the village; that, if the railway cut through it, the tiger would escape and go to the mountains and the village would go to the eternal bowwows, the poeple would die; the cocks would not crow, and the dogs would cease to speak. The engineers met the chief men of the village on the ground and discussed the matter but could bring no arguments to bear to get their consent to the location of the line, and the result was that the location was changed at this point.

METHODS AND COST OF CONSTRUCTION.—Many unique methods of construction were used, some original and others older than the hills to the Chinese, although new to foreigners. In the construction of embankments the Chinese were fairly adept for the reason that they had been constructing dykes for hundreds of years. They entirely ignored the use of wheelbarrows or all other methods of transportation except baskets. They were finally broken in to use wheelbarrows and small cars carrying about 1 cub. yd. For the transportation of materials less than 100-ft., baskets were found to be more economical, while for moderately short hauls the wheelbarrow proved the best. The cars were used in long hauls of 1000 to



30-FT. DECK GIRDER, SHOWING COFFERDAM



STANDARD 12-FT. ARCHED BRIDGE

rapidly built. This structure will be 3.3 kilometers in length and about 20 meters in height—six above water line. There will be 102 spans (or arcs), but not of equal dimensions. Already twenty-two are completed from the south and ten from the north side. It is expected that the work will be finished in about five months. There is a staff of fifty European engineers and over 3,000 Chinese workmen employed, and the work is being rapidly pushed forward. An installation of electric light is being erected and work will go on day and night. The treachery and strength of the current, and the breadth and nature of the stream, make the bridging of "China's Sorrow" a magnificent engineering project. No caissons are built, but screw piles are driven by machinery, right down beneath the scour of the bed. When it is known that the depth of the main current is 10 metres; that in flood there is over 14 metres of water, and that there is no rock foundation in the river, the difficulty and nature of the bridging task may be appreciated.

SEOUL-FUSAN RAILWAY, KOREA.—Mr. David Davies, a well-known Welsh land-owner, recently travelling in the Far East, gives the following description of the new railway from Seoul to Fusan:—Arriving at Fusan we travelled along the new railway to Seoul, a distance of about 270 miles. The engineers have pushed on the construction with marvellous rapidity, and have accomplished their task a year earlier than they anticipated. In course of time this railway will be connected with the Newchwang-Mukden line, and thus it will be possible when the war is over to travel direct from Fusan to St. Petersburg. The journey from Fusan to Seoul is particularly interesting, and gives one a good impression of the country. Between Fusan and Teiku we passed several large lakes connected by a broad river. In former times this must have been the outlet for the infinitesimal trade which Korea indulged in, and there are still a few junks to be seen plying along the lakes. The iron bridges have been extremely well built on stone work foundations, while the part of the construction across the mountains is a feat of engineering which reminds one of the railways to Switzerland. Two ridges have to be crossed, and in each case the line makes a wide curve gradually ascending the steep slopes, and half-way up it enters a tunnel which pierces the mountain at a height of 2,000 ft. The building of this part of the line has evidently involved a tremendous amount of labor. The line is well made, and there is very little jolting. All the rolling stock has been imported from the United States; the locomotives are built by Baldwin & Co., of Philadelphia, the cars are made in Delaware, and the 90-lb. rails come from the Carnegie steel works. A great many of the stations are still in course of erection. The frame work is constructed of wood, with walls of bamboo, plastered over with mud, and the roofs tiled. Very neat they look, and so also do the Japanese houses along the railway —striking contrast to the untidy and broken-down huts in which the Koreans live. All along the line there are Japanese soldiers, armed with rifles, supervising the building of the road and the bands of coolies at work.

ELECTRIC LIGHTING, TRACTION POWER, ETC.

TELEGRAPH LINE DESTROYED, NORTH CHINA.—The telegraph line between Shimintun and Kwangmin has been destroyed by brigands.

TROLLEY WIRE FOR JAPAN.—The Elmer P. Morris Company, New York City, has secured a large contract for trolley wire to be exported to Japan.

ELECTRIC LIGHTING ABANDONED, IPOH.—The electric lighting of Ipoh, State of Perak, F. M. S., is to be abandoned in favor of kerosene vapor lamps.

PENANG ELECTRIC TRAMWAYS.—It is confidently expected that this undertaking will be completed and in full working order before the end of the present year.

CABLE LAYING, CHINA.—A cable laying ship belonging to the Foochow Vicereyal Government is now in Canton waters laying submarine cable between Canton and Foochow.

NEW POWER COMPANY, TOKYO.—An electric power company, styled the Tokyo Denryoku Kaisha, having a capital of -Y-6,000,000, will shortly be established. On obtaining its charter the Company will formally open negotiations with the Tokyo Sulryoku and Buso Denryoku Companies for taking over their business, for which an understanding already exists.

NEW JAPANESE TARIFF.—According to the new Japanese Tariff, which goes into effect July 1st, 1905, the duty on electrical apparatus and material will be increased as follows:—Electric light apparatus, instruments and parts thereof, from 10 per cent to 15 per cent; telephones and parts thereof, from 10 to 15 per cent; copper wire, from 10 to 15 per cent; submarine and underground telegraph cables, from 10 to 20 per cent.

COMMUNICATIONS IN KOREA.—The Secretary of the Japanese Communications Department is now engaged in taking delivery of the port telegraph and telephone system from the Korean Government, which task will not be completed short of a month. With regard to the Korean telephone system, there are four connections between Seoul and Chemulpo, a new line having been completed in May. The Japanese authorities will not begin the construction of telephone connections from Seoul to Fusan, Gensan, Phyongyang, and elsewhere.

ELECTRIC RAILWAYS, CHINA.—A Washington (D. C.) dispatch says that Mr. Charles H. Baker, of Seattle, Wash., has sailed for China to engage in railroad building in that empire. Mr. Baker is backed by very prominent capitalists of New York City and in the Western part of the United States and intends to build a trans-China electric railway system. The system is to be built in relays and after the method of the suburban system prevailing with the third-rail lines in New York and California. The men behind Mr. Baker are all Americans, and propose a line in conjunction with Chinese capital, to be owned exclusively by American and Chinese promoters, in competition with the other syndicates operating through China now under old concessions.

WESTINGHOUSE TURBINES FOR JAPAN.—The Japanese engineering and contracting firm of Takata & Co., Tokyo, has just placed an order, through its New York office, for a fourth 1,000-kw Westinghouse steam turbine outfit. This outfit is for the new power house of the Tokio Electric Light Company, Tokio, Japan. Takata & Co. have recently shipped out the first two of these machines, and the remaining two will be shipped out some time within the next four to five months. The generators are wound for three-phase, 50-cycle, 3,500 volts. They operate at 1,500 r. p. m. The stationary armature is wound for 3,500 volts between line wires and about 2,000 volts between line wire and neutral. This neutral is brought out for operating a three-phase, four-wire lighting system.

ELECTRIC PLANT IN FORMOSA.—In the early part of 1904 the Engineering Department of the Formosan Government commenced work on the construction of an electric plant on the upper course of the Shinten River, about 10 miles to the South-east of Taihoku. The site selected is immediately below the junction of the Hokusei and Nansei Rivers, which form the Shinten. Water power will be used, and will be supplied by a canal cut from the upper source of the Nansei River (South branch), which flows down the mountains in a series of cascades. Just above the junction the course of this stream describes a reversed S, which may be used to illustrate the construction of the canal, from the upper point of the figure to its centre, where the water is brought to the opposite side of the river by means of syphon pipes, thence to the lower point of the figure to the site of the plant, where it will have a fall of about 50 ft. The length of the canal is 7,200 ft., which includes a tunnel of 220 ft., and 280 ft. of two-row syphon pipes, each 5 ft. in diameter. The width of the canal at the bottom is from 11 to 12 ft., and the discharge will be 250 cubic feet per second. This is intended to give 1,000 horse-power, but 650 horse-power will be sufficient for the present requirements. The plant will be equipped with two McCormick turbines, each of 584 horse-power and 450 revolutions per minute, two 3-phase Westinghouse alternating generators of 250 kilowatts, 11,000 volts, and 450 revolutions per minute, a McCormick exciter turbine of 49 horse-power and 950 revolutions per minute, and a Lombard governor, type D. Considerable delay has occurred in the arrival of some of the equipment from the United States, and the plant will not be completed before June or July, 1905. It will supply the electric power for lighting the cities of Taihoku and Daitotei (Tamsui), also for an ice plant, sawmill, and other works, in the city first mentioned. The cost, including the construction of the canal, will be approximately $175,000.

WATERWORKS AND IRRIGATION

RECLAMATION OF WASTE LANDS, KOREA.—The Department of Agriculture, Commerce, and Industry at Seoul has promulgated the regulations relating to the reclamation of waste land, according to which no Korean who has obtained reclaiming rights will be allowed to sell or mortgage those rights. Those holders of rights who do not begin the work of reclamation within a year will forfeit same.

IRRIGATION IN INDIA.—The Secretary of State for India has sanctioned as a productive public work a project estimated to cost Rs. 18,60,000 including indirect charges, for irrigating Divi Island at the mouth of the Kistna River in the Madras Presidency, by raising water from the river by means of centrifugal pumps driven by Diesel oil engines. It is estimated that the project will irrigate 50,000 acres of land and the net revenue anticipated is Rs. 1 76 658 per annum, which is equivalent to a return of 9.50 per cent on the total capital outlay.

BUILDINGS

RAILWAY OFFICES, KUALA LUMPUR.—The new railway offices at Kuala Lumpur have been completed.

PETROLEUM STORE, SELANGOR, F. M. S.—Tenders for the construction of a large Petroleum Store have been called for.

NEW MUNICIPAL OFFICES, CALCUTTA.—The New Council Chamber will probably be first used for official business, next month.

SERUM LABORATORY, SIAM.—The Siamese Government has appropriated the sum of Tcs. 16,000 for a new serum laboratory, to be built at Phrapatom.

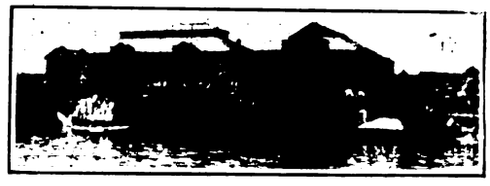
IMPERIAL LIBRARY, UYENO, JAPAN.—The new building of the Imperial Library, which has so far cost -Y-320,000, will be completed about September of the present year.

LEGATION BUILDINGS, KOREA.—The Chinese Minister to Korea has applied to his Government for Tls 60,000 for the purpose of constructing suitable legation buildings at Seoul.

NEW PRINTING STRUCTURE, TOKYO.—The printing office of the Hakubun Kan, publishers in Tokyo, which was destroyed by fire last Autumn, has been reconstructed on its former site and the premises occupied.

ARSENAL WORKSHOPS, ITABASHI, JAPAN.—The machinery and plant in the Military Arsenal at Koishikawa Japan, have been removed to the new workshops covering 420,000 *tsubo*, at Itabashi. The Government is also constructing an electric railway between Itabashi and Otsuka for the transportation of the products of the arsenal.

CORNABÉ, ECKFORD & CO'S GODOWNS, CHEFOO.—Messrs. Cornabé, Eckford & Co., of Chefoo and Wei-hai-wei, North China, have just opened splendid new godowns at Chefoo, which are now in the full flood of business. Reference was made several months ago by THE FAR EASTERN REVIEW to these buildings while they were in course of construction, and now,



throughthe courtesy of the firm, this paper is enabled to present herewith an illustration of the improvement. Messrs. Cornabé, Eckford & Co's scale of prices for storage of goods in these godowns shows that the firm is able to store and look after any shipments which may be made from any part of the Orient to Chefoo.

BRIDGES

INDIAN BRIDGE BUILDING.—It is announced that an important contract for the erection of a large viaduct at Khushalgarh, over the River Indus, has just been secured by the Teeside Engineering Company, of Middlesbrough. Early delivery was an important feature in the placing of the contract by the India Office, and the contractors will ship from the Tees to Bombay the greater portion of the steel work comprised in the structure during the course of the present year.

PUBLIC WORKS

PROTECTIVE WORKS IN MADRAS.—In view of the prevailing distress in the Madras Presidency of India on account of the failure of the Northeast monsoon, the Madras Government has requested the President of the local boards to start as early as possible all ordinary works provided for in the budget estimates for 1905-6, which are suitable for the employment of unskilled labor, and to push them forward to completion by the time the next South west monsoon sets in.

HONGKONG DRAINAGE WORKS.—The Director of Public Works in his report for 1904 says that during that year the sewers and nullahs were cleansed and maintained in a satisfactory condition. Considerable cost has been entailed in clearing out the sand washed down by heavy rains in some of the nullahs, more especially in Kowloon. A large amount of this sand comes from the spoil of quarries from the neighborhood and, where this is found to be the case, the lessees of the quarries have been called upon to clear it away. The flushing tanks on the sewerage system have been regularly operated at low tides and have assisted to keep the sewers clean. The large one erected last year behind the Volunteer Headquarters has been of great assistance in keeping the sewers in Queen's Road, to the east and west of Garden Road, clear, and has worked well by greatly increasing the velocities in these pipes. The further construction of flushing tanks in suitable positions on this system had to be held over, owing to the large amount of new work going on for Water-works.

PORT WORKS, DREDGING, DOCKS, ETC.

BORNEO WHARF, SINGAPORE.—The name of this pier has been changed to Jardine's Steps.

STAR FERRY PIER, KOWLOON.—The new pier of the Star Ferry Company, Ltd., Kowloon, will probably be opened for traffic next December.

KARACHI (INDIA) PORT TRUST.—Proposals have been called for in England for the structural iron work required in the iron ship wharf extension.

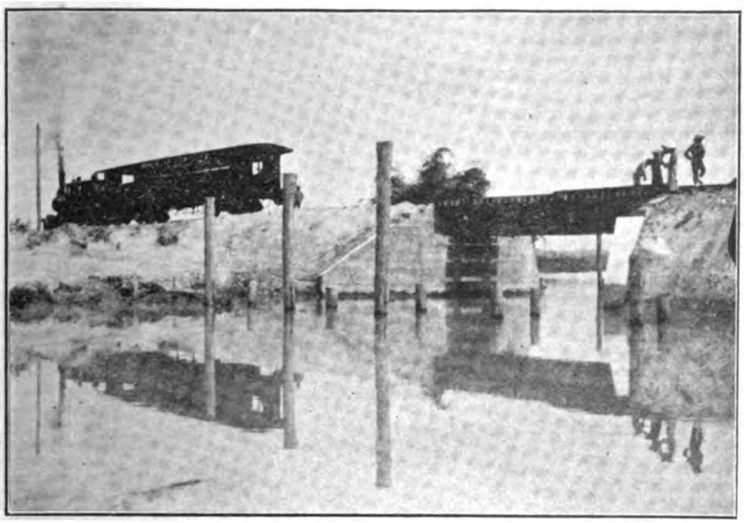
WELD QUAY, PENANG, S. S.—The Legislative Council of the Straits Settlements has authorized the expenditure of an additional sum of $30,000 for the completion of the reclamation of this quay. The original estimate for the work was $157,764.

HARBOR WORKS, FUSAN.—The Seoul-Fusan Railway Company intends to begin the construction of harbor works at Fusan as soon as possible. It is estimated that this improvement will cost at least -Y-150,000.

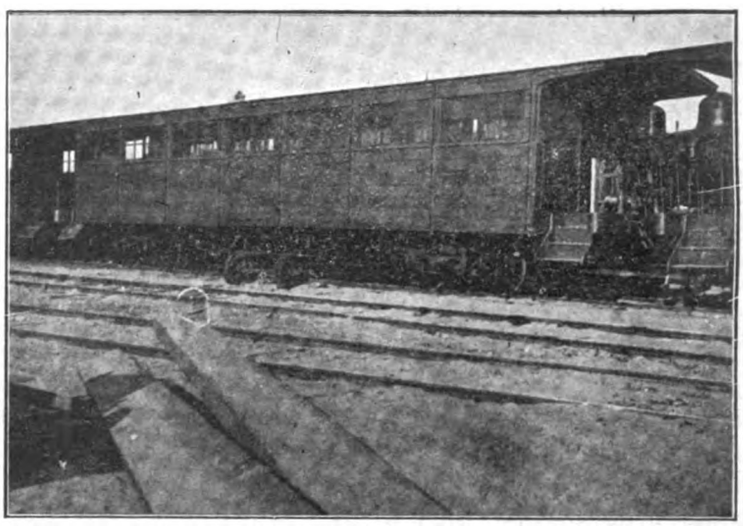
BREAKWATER AT KUNSAN, KOREA.—A contract for the construction of a breakwater at Kunsan, Korea, has been signed between the Inspector-General of Korean Customs and a certain Japanese firm. The works will shortly be started.

TANJONG PAGAR DOCK COMPANY, SINGAPORE.—It is announced that the Managing Director of this Company has notified His Excellency the Governor of the Straits Settlements that it is the intention of the British Government to take over the Company's undertaking from June 30, 1905.

SURVEY FOR HARBOR IMPROVEMENTS, SINGAPORE.—The additional sum of $28,370 has been appropriated by the Straits Settlements Government for carrying out the engineering surveys and preparations of reports in connection with the proposed Harbor Improvement Scheme for Singapore.



30-FT. DECK GIRDER; CHIEF ENGINEER'S CAR

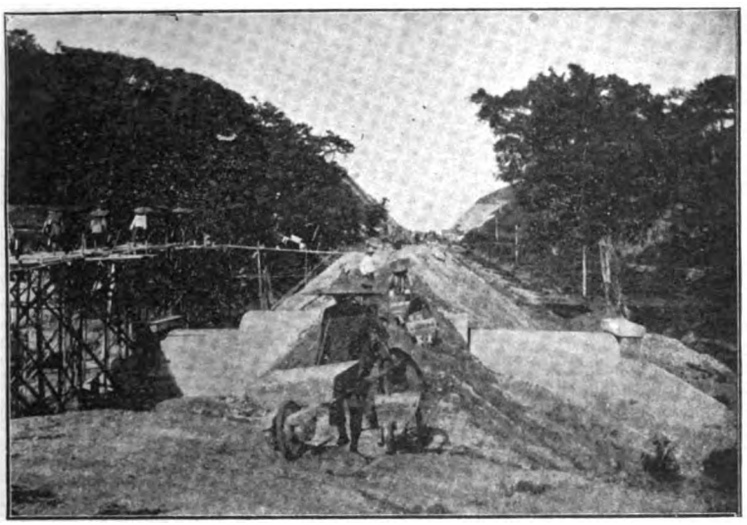


SECOND-CLASS PASSENGER COACH

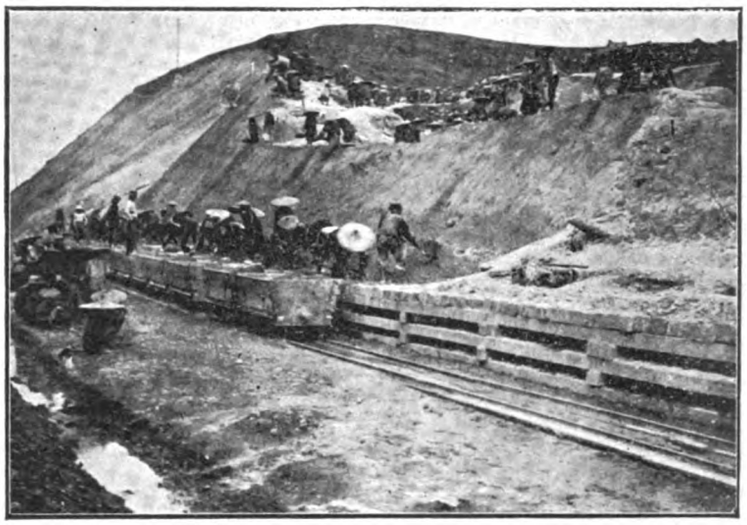
2000 ft., and at a distance of 2000 ft., ordinarily soft-cut material could be picked, shoveled into the cars and delivered into an embankment 2000 ft. away for from 20 to 25 cts., Mexican, per yd. Cost of overhaul by cars was about ½ c. per cub. yd. per 100-ft., while overhaul by basket or wheelbarrow was from 1 to 2 cts. per yd. The cost of embankments to a height of 4 or 5 ft., through rice fields, was from 10 to 12 cts. per cub. yd., the cost increasing as to height of embankment, coming up to 18 or 20 cts. in some of the highest. These prices obtained on the main line after the completion of the branch. The cost of rock excavation run from 60 cts. on the softer sandstones to $1.40 on hard trap per cub. yd.

Piles cost from 25 to 35 cts. per lin. ft. according as they were 25 or 50 ft. long. The piles used were Chinese pine brought many hundreds of ms. from the headwaters of the North and West Rivers. This wood is very poor—something like basswood—but is the best available and answers fairly well for pile foundations, but great care has to be used in driving to avoid breaking. A diameter of from 14 to 16 ins. at the butt is about the extreme size that is obtainable. The driving cost about $2 each. At the larger bridges steam drivers were used and at the smaller ones hand drivers. The hand drivers were handmade and operated with a whim. One of the drivers was fitted with a treadmill arrangement for raising the hammer, and it was found that the same number of coolies would drive twice as many piles by this method in a day as by hand, and this manner of working appealed to them more strongly than raising the hammer by turning a crank.

(Continued on page 224.)

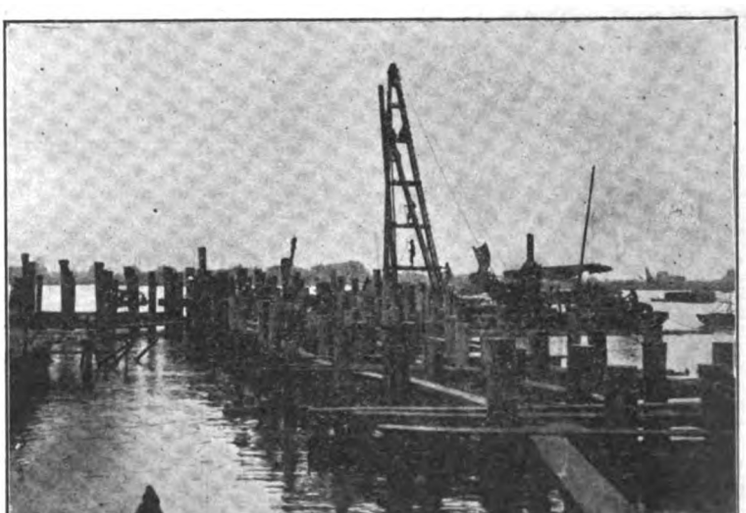


A 25-FT. FILL; SAINAM CUT, DEEPEST ON THE LINE, 70 FT. FROM SUMMIT, SHOWN IN THE DISTANCE



HAULING WASTE MATERIAL FROM SAINAM CUT TO MAKE HEAVY EMBANKMENT

END OF TRACK IN WONG TING SHE ROCK CUT



DRIVING PILES FOR WHARF AT WONG SHA TERMINAL

per Watch.—From 8 a. m. to 4 p. m., 321.4209 h. p.; 4 p. m. to 12 a. m., 322.7456 h. p.; 12 a. m. to 8 a. m., 325.4939 h. p. *Average Boiler Pressure.*—155 lbs. *Average Temperature of Feed Water*—140.88 F. *Average Temperature of Feed Water per Watch*—From 8 a. m. to 4 p. m., 140.88° F.; from 4 p. m. to 12 a. m., 140.93° F.; from 12 a. m. to 8 a. m., 140.85° F. *Average Temperature of Escaping Gases*—513.66° F. *Average Temperature of Escaping Gases per Watch.*—From 8 a. m. to 4 p. m., 509° F.; from 4 p. m. to 12 a. m., 517° F.; from 12 a. m. to 8 a. m., 515° F. *Force of Draft Measured in ins. of Water.*—.85 in *Average Quantity of Water Evaporated per lb. of Coal, as Brought from Coal Pile.*—5.7697 lbs. *Average Quantity of Water Evaporated as Preceding, per Watch*—From 8 a. m. to 4 p. m., 5.5422 lbs.; from 4 p. m. to 12 a. m., 5.7943 lbs.; from 12 a. m. to 8 a. m., 5.9871 lbs.

Economic Evaporation.—*Moisture in Coal*—5 per cent. *Water Actually Evaporated per lb. of Dry Coal, from Actual Pressure and Temperature.*—6.0734 lbs. *Water Actually Evaporated per lb. of dry coal, as Preceding, per Watch*—From 8 a. m. to 4 p. m., 5.8339 lbs.; from 4 p. m. to 12 a. m., 6.0994 lbs.; from 12 a. m. to 8 a. m., 6.3023 lbs. *Equivalent Water Evaporated per lb. Dry Coal, from and at 212°*—6.8246 lbs. *Equivalent Evaporation as preceding, per Watch.*—From 8 a. m. to 4 p. m., 6.5555 lbs.; from 4 p. m. to 12 a. m., 6.8533 lbs.; from 12 a. m. to 8 a. m., 7.0819 lbs. *Equivalent Water Evaporated per lb. of Combustible, from and at 212°*—7.2377 lbs. *Equivalent Water Evaporated per lb. of Combustible, as Preceding, per Watch.*—From 8 a. m. to 4 p. m., 6.9476 lbs.; from 4 p. m. to 12 a. m., 7.3342 lbs.; from 12 a. m. to 8 a. m., 7.4480 lbs.

Commercial Evaporation.—*Equivalent Water Evaporated, per lb. of Dry Coal with* ⅛th *Refuse, at 70 lbs. Gauge Pressure, from Temperature, of 100°*—5.2470 lbs. *Equivalent Water Evaporated per lb. of dry Coal with* ⅛th *Refuse, as Preceding per Watch*—From 8 a. m. to 4 p. m., 5.0360 lbs.; from 4 p. m. to 12 a. m., 5.3165 lbs.; from 12 a. m. to 8 a. m., 5.3990 lbs.

Data and Results of the Evaporative Test.—*Manner of Start and Stop*—Running, with thin fire. *Kind of Run*—Continuous. *Duration*—24 hrs. *State of the Weather*—Fair. *Grate Surface*—48.75 sq. ft. *Heating Surface*—2,000 sq. ft. *Ratio of Heating Surface to Grate*—41. *Average Pressure*—Steam pressure by gauge 155 lbs.; atmospheric pressure, 29.80 ins.; draft in ins. of water, .85 in.; pressure per sq. ft. due to unbalanced column of air in chimney .4913 oz. *Average Temperature*—External air, 85.92° F.; fire room, 88.64° F.; steam, 368.62° F.; escaping gases, 513.66° F.; water entering heater, 89.56° F.; water entering boiler, 140.88° F. *Fuel*—Total quantity of coal fired, 41,264 lbs.; moisture in coal, 5 per cent; dry coal consumed, 39,200.8 lbs.; total ash and refuse (dry), 2,241 lbs.; total combustible consumed, 39,960 lbs.; per centage of ash, 5.43; dry coal consumed per hr., 1633.367 lbs.; combustible consumed per hr., 1,540 lbs.; dry coal consumed per sq. ft. of grate per hr., 33.5 lbs.; dry coal consumed per sq. ft. of heating surface per hr., .816 lb.; combustible consumed per sq. ft. of grate per hr., 31.589 lbs.; combustible consumed per sq. ft. of heating surface per hr., .770 lb.; average amount of coal fires each time, 100 lbs.; average time between firing, 4 min.; average number of shovelfuls fired each time, 6.5.

Bureau of Science Analysis.—*Proximate Analysis of Coal.*—Fixed carbon, 43.3 per cent; volatile matter, 48 per cent; moisture, 5 per cent; ash, 3.7 per cent. *Analysis of Ash*—Moisture, 2.4 per cent; combustible matter, 62.6 per cent; *Analysis of Clinker*—Moisture, 0.6 per cent; combustible matter, 12.2 per cent. *Heating Power of Coal*—Heat units per lb. of coal, B. T. U. 12,154. *Results of Calorimeteric Tests*—Average of thermometer, 268° F.; quality of steam (dry steam being taken as unity), .9757; percentage of moisture in steam, 2.43.

Water.—Total weight of water pumped into the boiler and apparently evaporated, 238,083 ½ lbs.; water actually evaporated (corrected for quality of steam), 232,297.9083 lbs.; equivalent water evaporated from and at 212° F., 267,534.2416 lbs.; equivalent water evaporated into dry steam, from and at 212° F., 261,033.1595 lbs.; factor of evaporation, 1.1237. *Water Used per Hr.*—Water evaporated per hr., 9,920.1380 lbs.; water evaporated per hr. (corrected for quality of steam), 9,679.0786 lbs.; equivalent evaporation per hr. from and at 212° F., 11,147.2591 lbs.; equivalent evaporation per hr. from and at 212° F. (corrected for quality of steam), 10,876.3806 lbs. *Economic Evaporation*—Water actually evaporated per lb. of dry coal (from actual pressure and temperature), 6.0734 lbs.; equivalent water evaporated per lb. of dry coal, from and at 212° F., 6.8246 lbs.; equivalent water evaporated per lb. of combustible, from and at 212° F., 7.2377 lbs. *Commercial Evaporation*—Equivalent water evaporated per lb. of dry coal, with ⅛th refuse at 70 lbs. gauge pressure, from feed water at 100° F., 5.2470 lbs. *Rate of Evaporation*—Water evaporated from and at 212° F. per sq. ft. of heating surface per hr., 5.5736 lbs.; water evaporated from and at 212° F. per sq. ft. of grate surface per hr., 228.66 lbs.; water evaporated from and at 212° F. per sq. ft. of least area of draft, 1,303.77 lbs. *Commercial H. P.*—Commercial h. p. developed on basis of 30 lbs. of water evaporated into steam of 70 lbs. gauge pressure from feed water of 100° F., 323.231 h. p.; h. p. (builder's rating) 200; per cent developed above builder's rating, 61.87.

CONSTRUCTION OF THE CANTON-SAM SHUI BRANCH OF THE CANTON-HANKOW RAILWAY

(Concluded from page 203)

Concrete for bridge foundations was composed of 1 part cement, 3 parts sand, and 5 parts broken stone. This cost in place from $10 to $14 per cub. yd., exclusive of cost of cofferdams when used, which added from $1 to $2 per cub. yd. The cement used was the "Green Island" brand which is one of the best cements in the Orient and very satisfactory to use on account of its uniformity. Sand of a most excellent quality was found in the immediate neighborhood while the broken stone came from the North River and cost about $2 per cub. yd.

Oregon Pine was used for forms, false work, etc., and cost in Canton $70 per 1000 ft.

Rolling Stock.—The rolling stock is all of American make. Eight second-hand locomotives of the Manhattan Elevated Railroad were bought for $3000 gold each, and sent out for temporary and construction purposes. The standard locomotives weigh about 80 tons complete and were built by the Pittsburg Locomotive Works. Two of them are in use now and they are very common-sense and up-to-date machines. Twenty 40-ton flatcars were sent out before the branch was completed and it was necessary to transform these into temporary passenger coaches. This was done by the user of rough Oregon Pine, boarding them up half way, putting on a roof covered with "P. & B." roofing, and furnished with four long benches running lengthwise of the coach. The first class coaches were the same except the benches were either covered with Canton matting or replaced with bamboo chairs and had Canton matting on the floors.

The next step was the conversion of boxcars into passenger coaches, which was performed by putting in benches and cutting two small windows on either side. After a few months first, second and third-class coaches were sent out, also baggage cars.

This branch commenced to pay after the first month that it was put in operation. The increase in volume of passenger traffic was steady for 15 mos., when very nearly the maximum was reached. Since then the increase has been slow. The receipts of this line average from $50,000 to $60,000 per mo., and the operating expenses are about 25 per cent. This makes a very creditable showing for Mr. Lind, the efficient traffic manager. An express freight has been established which is growing in popularity, and which is sure eventually to get all traffic in valuable cargo, such as specie, silks, tea, etc. It will be sometime, if ever, before this line will do a large freight business for waterways are everywhere and afford a cheap, if slow, means of transportation, and time is no object to the average Chinaman in his common everyday affairs.

The Main Line.—Construction was begun on the main line in January, 1904, and entirely suspended in October of the same year. During this time 12 ms. were practically completed from Canton to Ko Tong, with the exception of laying the rails over the last 6 ms. This work was not prosecuted vigorously as the money of the company began to get short and only a limited amount could be expended monthly. It was very unfortunate that these 12 ms. could not have been finished and put into operation, as they would have added very materially to the receipts of the company. On these 12 ms. there was one thorough cut which was about ½ of a m. in length and at the summit 50 ft. deep, and contained 112,000 cub. yds. of material. A small industrial railway was used to haul the material in this cut to make the embankments on either end. The extreme haul was 3000 ft. and the cost was 25c. a yd. The bridges on this section were all small and single spans. At Ko Tong 15 6-ft. spans were to be put in. The foundations had not been built at the time of the closing down of the work but the spans were made and in the yard of the Wong Sha, or Canton terminal.

Engineering Lessons.—A summarization of the lessons this railway construction teaches to foreign engineers, and others undertaking construction work in China, is embodied in one axiom,—treat the Chinese fair and be patient. There is no man living who will do as much work, do it as cheerfully and for as little money as a Chinaman if he is treated right and handled properly. He has disagreeable attributes to be sure, but his good qualities more than offset them. It must be understood that he is of necessity almost entirely ignorant of modern methods of doing things, but he is very imitative and learns easily. When the Canton-Samshui division was put in operation all the locomotive drivers were foreigners with Chinese firemen. Within 1 yr. from the date of opening all the foreigners had been replaced by the native firemen and only one foreign expert driver retained to have general supervision over the rolling stock and teach new men. The same thing was done in handling the steam pile drivers At first the crew was made up of foreigners who were soon replaced with Chinese. This applied through all the work, and when construction was suspended there was very little need of skilled foreign foremen, as Chinese skilled workmen had been developed in all lines.

JAPAN'S SHIPPING COMPETITION

The Tokyo correspondent of *The* (*London*) *Times* has this to say about the carrying trade of the Far East, with special reference to the rapidly-growing influence of Japan over maritime commerce in the Orient:—

The tendency of Japanese shipowners before the war with China was to confine their enterprise to domestic waters; but the expansion of national spirit caused by the war and the pressure of competition in coastwise seas owing to a plethora of carriers drove them further afield. It is thought that the latter movement may easily be carried still further. East Asia has become a chief arena of the world's diplomatic activity, and its commercial interest grows daily greater. Japan is the centre of that activity and that interest. Her foreign trade has swelled from 17,000,000 sterling in 1893 to 69,500,000 in 1904, and the tonnage employed in carrying it has increased in the same time from 9,000,000 to 27,000,000. The trade has quadrupled, the tonnage trebled. Turning to Chinese ports, we find that the entries and clearances aggregated at the corresponding dates 30,000,000 and 58,000,000 of tons respectively, a development of nearly double. Here, then, are two fields, that of her own oversea trade and that of the Chinese carrying trade, and Japan's share in them hitherto furnishes a measure of what may be expected for her hereafter. In Chinese ports, where the order in 1894 was England, Germany, Japan, the Japanese tonnage being only 1/5 of the British, Japan in 1904 had displaced Germany from the second place, and could show a tonnage equal to ½ of the British. In Hongkong, too, Japan's shipping grew from 1/15 of the British figure in 1898 to ⅓ of it in 1903.

FAR EASTERN ENGINEERING, CONSTRUCTION, COMMERCIAL AND FINANCIAL NEWS

PERSONAL

MESSRS. FABER & VOIGT, of Kobe and Yokohama, announce that they have established themselves at Hamburg.

MR. J. O. P. BLAND, secretary of the Municipal Council of Shanghai, a well-known writer of Chinese affairs, has resigned his post to join the service of the British and Chinese Corporation.

MR INGLIS, of London, general manager of the Great Western Railway Company, was reported to have been appointed general manager of the new docks and harbor to be constructed at Singapore, but *The London and China Express* says the appointment has not been made.

ROBERT G. DIECK, C. E., has been appointed city engineer of the Municipality of Manila, P. I., at the annual salary of ₱7,000, Philippine currency, and formally assumed his new position January 1st. Mr. Dieck was promoted from the position of acting city engineer. Formerly he was superintendent of the waterworks system of the city and has been in the municipal service since 1901.

RAILWAYS, SUPPLIES, ETC.

ANTUNG-MUKDEN RAILWAY.—The Japanese railway between Antung, in Korea, and Mukden, in Manchuria, has been completed.

MAIL CONTRACT, STRAITS SETTLEMENTS.—The Railway Department will receive $9,708 this year from the government for the hauling of mails by train.

MALACCA-PULAU SEBANG RAILWAY, STRAITS SETTLEMENTS.—For completion of this railway, $100,000 appears in the present year's estimates.

EQUIPMENT, FEDERATED MALAY STATES.—During the current year the Railway Department of the Federated Malay States will purchase four locomotives and six carriages at an expenditure of $231,500.

CANTON-WHANGPOA RAILWAY.—The scheme for the railway between Canton and Whangpoa has been sanctioned by the Throne after being memorialized by the Board of Commercial Affairs.

KIANGSI-KUANGTUNG RAILWAY, CHINA.—The Board of Commerce at Peking has instructed the viceroy at Canton to submit a scheme for the construction of an inter-provincial railway system between Kiangsi and Kuangtung, and to find the necessary means for the purpose in view.

CANTON-AMOY RAILWAY, CHINA.—The first section of the Canton-Amoy line, which Chang Pat Chi, a millionaire from the Straits Settlements, is successfully promoting, is reported to start from the East Gate, Kwongchaufu, to Whampoa. The latter-named city will be the terminus of the line, and with a deep harbor at Whampoa it is intended to try and take commercial interests from Hongkong.

SWATOW-CHINCHOW LINE.—The Swatow-Chinchow Railway will probably be opened in the spring of 1906, as only a small portion of the line remains unfinished. When this line is completed it is quite likely that the constructors will direct their attention to the proposed Canton-Whampoa Railway, as their original intention was to connect this proposed line with the Swatow-Chinchow line.

DAGUPAN-CABANATUAN RAILWAY EXTENSION, LUZON, P. I.—An extension of the Manila Railway Company, Ltd., from Dagupan to Cabanatuan, Province of Nueva Ecija, is now open for public traffic. The new line brings a fine territory 70 ms. from Manila into direct communication with that city, and as the country which the line traverses is very rich, it may be expected that the company will before long be able to earn good returns from its investment.

PROPOSED KONGMUN-SUNGSUIHOW RAILWAY, CHINA.—It is reported that a proposal for a railway from Kongmun to Sungsuihow, a distance of about 20 ms., has been placed before Viceroy Shum by Chan Wai Hing. A capital of $1,000,000 has been agreed upon. It is the intention of the promoter of this line to connect it with the Sunning Railway. Sungsinghow is a business mart closely connected with Canton and Kongmun.

CANTON-HANKOW RAILWAY.—Since it was decided for the provinces of Kuangtung, Hunan, and Hupeh to construct, severally instead of conjointly, sections of the Canton-Hankow Railway, the gentries of the first two named provinces have been considering the ways and means of undertaking the work, but Hupeh has so far made no effort. Viceroy Chang Chih-t'ung has decided, however, to borrow from the treasury of the provincial salt intendent and from the reserve funds of his silk filatures and cotton yarn factories, which loans, to the total amount of Tls. 3,000,000, will be repaid when the railway is completed and begins to make money.

BORNEO RAILWAY.—The railway on the W. coast of Borneo seems to be stirring up the natives down that way. The Papar Bridge, having been carried away at the end of last October, has caused a great deal of delay and trouble with the transport across the river. Previous to the carrying away of the bridge trains were leaving Jesselton and Beaufort and arriving at their destinaton in 5 hrs. After the disaster, however, the delay at Papar was so great that the trains did not get in without being from 7 to 8 hrs. late. Now that the line has been opened again, great relief is experienced by the railway people.

IMPERIAL CHINESE RAILWAY ADMINISTRATION.—Sheng Kung-pao has wired to the Waiwupu and the Board of Commercial Affairs, Peking, that the Imperial Chinese Administration for the Peking-Hankow Railway having been established in Peking and Tang Shao-yih having been appointed director-general of the same, the Shanghai office of the Imperial Chinese Railway Administration should be abolished. The Waiwupu has memorialized the Throne to that effect, which has concurred in the recommendation. The Waiwupu has also secured the sanction of the Throne to have the railways between Tai Yuan and Chenting as well as Kaifeng-fu and Honan-fu administrated at the office of the Imperial Chinese Railway Administration.

KAWASAKI-KANAGAWA LINE, JAPAN.—The Kawasaki-Kanagawa section of the Keihin (Japan) Railway has been opened to traffic. The fare between Kanagawa and Shinagawa is 18 sen for single journey and 25 sen for return trip. The through fare for the Yokohama, Keihin, and Tokyo electric car lines will be 25 sen single journey. The government railway, now threatened with competition by the Keihin Electric Railway, will try to score by reducing the time of the journey between Yokohama and Tokyo. The electric tram will run between Kanagawa and Shinagawa—it is said—in 29 min. 30 sec. The government railway trains will endeavor to cover the distance between Yokohama and Shimbashi in 27 min. A trial run on that basis has been successfully carried out.

CANTON-AMOY RAILWAY.—The promoters of this line have submitted to the Board of Commerce, Peking, a scheme for its construction, and a prospectus embodying it is expected to be issued shortly. The Canton-Amoy Railway Company, Ltd., with a capital of Tls. 800,000 (8000 shares of Tls. 100, with a guarantee of an annual dividend of 6 per cent) has been floated for the purpose of constructing the line. The route starts from Tai Tung Mun, (E. of Canton), enters Whampoa, crosses Tsangshing, Tungkun, Shakloong, Waichow, Poklo, Hoilukfung, Chiuchow, then runs into Foekin and ends in Amoy. The company will enjoy supreme control for 60 yrs. and has been promised that no other railways will be allowed within 10 ms. on either sides of the Canton-Amoy Railway. In event of hostilities, the government shall have complete control of the line for the transportation of troops and other purposes. Provisions have also been made respecting telegraph along the line and railway guards as well as the management of the line.

RAILROADS IN CHINA.—Viceconsul Cloud, of Hangchow, writes to Washington that the Chinese have projected many lines of railway, concerning which there is much strong talk at the present moment. Among the more important of these are:—The Hankau-Canton line, recently bought back from the American-Belgian syndicate; the Peking-Kalgan line, on which work began last autumn; the Shanghai-Soochow-Hangchow-Ningpo line, formerly granted to a British syndicate, but whose concession has been canceled; the Tientsin-Chinkiang line, running almost straight S. from Tientsin to Chinkiang on the Yangtsze River; a line from Swatow to Amoy and Fuchau, along the coast; a line from Ich'ang, above Hankau, to Chungking in Szechuan, and a line from Chungking S. to connect with the French system in Yunnan. Besides these many shorter lines have been surveyed, and of which there is some promise.

NEW SHANSI RAILWAY, CHINA.—For some months past strenuous efforts have been made by the merchants and gentry of Shansi to float their railway scheme, and the Shansi governor recently submitted a memorial reporting the establishment of the Tung-pu Railway Company by the Shansi gentry and merchants for the protection of China's interests. The proposed line is from Taiyuan, the provincial capital, to Puchou in the S. and to Tatung in the N. covering an area of some 2,000 li, and the estimated cost some Tls. 20,000,000. The promoters are raising a sum of about Tls. 500,000 for the construction of the section between Taiyuan and P'ingyao at the outset. The management will be in accordance with the rules of the Board of Commerce, and Hankow-Canton and Hankow-Szechuan lines. The Board of Commerce after due consideration of the scheme has warmly commended the exertions of the local men, as Shansi is undoubtedly a rich province and it is too often the custom of wealthy Chinese to neglect their own provinces and spend the money elsewhere. The board questions whether the necessary funds are all in hand, or the requirements of the railway regulations all fulfilled, and calls the attention of those who have means to the special advantages offered by regulations 9 and 12 to those who raise money for public enterprises, in order to stimulate public spirit.

PEKING SYNDICATE'S CONCESSION, CHINA.—The Peking correspondent of *The Times* (London), announces the signature of the agreement, by which the Peking Syndicate sells its railway from Tao-kou to Ching-hua to the Chinese Government payment to be made in 5 per cent bonds to the amount of £700,000 guaranteed by the Chinese Government, and the syndicate to work the line on account of the government. The delay has been due to the obstruction of Sheng, Director of Railways. In this case his unwillingness to sign was due to the fact that China, by the terms of the agreement, which must give the British similar rights to those granted to the Russians in the case of the Cheng-ting-Tai-yuen Railway, is required to guarantee as from January 1st, 1905, interest upon the capital of the railway, which amounts to £35,000. The railway is 91 m. in length, and runs from the mining property of the syndicate in Honan Plain to the small Wei River, crossing half-way the Peking-Hankow trunk line. The railway at present is, naturally, unable to earn its running expenses, but expects a large increase in its income when the two shafts now being sunk by the syndicate reach coal. These shafts are down 400 ft. The work was begun in September, 1902, and has been much delayed by the unexpected abundance of water. Coal was reached before the end of 1905, and the mine opened out. The syndicate is confident that coal will be found of ample thickness, but owing to the breaking of the boring-rod before reaching coal there is no absolute certainty as regards the depth at which coal will be struck or as to what is the thickness of the seam. Owing to the new coal mines already opened or projected, including the Lin-Cheng-hsien coalfield owned by the Peking-Hankow Railway to supply the country along the line N. of Honan, the main expectation of the syndicate is to sell its coal—which, judging from the coal obtained from native mines in the vicinity, is believed to be of excellent quality and semi-anthracite—in the Yangtsze. To reach this district the coal must be carried 385 m. over the Franco-Belgian trunk line controlled by Director Sheng. This latter railway crosses the Yallow River by a bridge, the largest in China, and the object of much interest to engineers, who predict that a considerable portion of it will disappear in the first flood; whereas, if it stands, the knowledge derived from all previous experience of the scouring powers of the Chinese rivers, especially the Yellow River, must undergo revision. No doubt the Peking Syndicate will obtain a clearly defined written agreement with the Belgians and Sheng guaranteeing the economical and uninterrupted carriage of its coal to the Yangtsze or along the railway to the N. failing which it should carry out its original intention to construct a railway 33 ms. long into Shansi Province, where its most valuable concessions are situated, and build a permanent bridge of its own across the Yellow River and a trunk line of its own from the bridge via Kai-fong to Nanking. Already the syndicate has prior rights to construct this railway, which would be one of the most promising in China.

ELECTRIC LIGHTING, TRACTION POWER, ETC.

TELEPHONE EXTENSION, JAPAN.—A telephone service has been inaugurated at Atsuta Village, Atsuta-gun, Hokkaido.

ELECTRIC TRAMWAY, PENANG, STRAITS SETTLEMENTS.—The new electric tramway at Penang is drawing near completion. The cars are singledecked, and seats run in rows across the breadth of the cars. They are entered from the side.

TELEFUNKEN APPARATUS.—The Argentine Navy has Telefunken apparatus in use on four warships, namely, *Julio*, *Patria*, *Libertad* and *Independencia*. Messrs. Arnhold, Karberg & Co. are China agents for System Telefunken.

ELECTRIC LIGHTS FOR WUCHANG, CHINA.—Part of a loan of Tls. 1,000,000 which has been secured by the Viceroy at Wuchang from a British firm, for public improvements there, will be expended for the installment of an electric lighting system in the viceregal city.

KUALA LUMPUR, SELANGOR, FEDERATED MALAY STATES.—Eighty thousand dollars has been set aside for the electric light scheme in this city, making up the balance of the $880,000 originally estimated, while $35,000 is allotted to lighting government quarters.

ELECTRICITY FOR CANTON, CHINA.—Albert C. Lee, of Providence, R. I., an electrical engineer, and Y. C. Lee, of New York, a civil engineer, cousins and both natives of China, have arrived at Cantôn from the United States in compliance with a summons from the viceroy there, to make the preliminary estimates for the installation of a big municipal power and lighting plant, with the probability that a big system of electric railway, under municipal control will follow. The expenditure of millions of dollars to give Canton a modern lighting and power plant will follow the reports of these two authorities, both of whom have been educated in America.

ELECTRICITY IN CHEFOO, CHINA.—The promoters of the Chinese Electric Light Company, Ltd., in Peking, have obtained sanction from the Board of Commerce and the Governor of Shantung for the introduction of electric light into Chinan for the use of both foreigners and Chinese. Tls. 150,000 is to be invested at Chinan by Chinese merchants of Tientsin, Chefoo and Chinan. The company promises to charge in silver currency $1 per lamp of 10 candle-power, $1.60 per lamp of 16 candles and $2.50 per lamp of 25 candles, per mo. It will be managed after the new regulations of the Board of Commerce concerning the establishment of electric light companies in China.

ELECTRIC POWER IN INDIA.—Plans are now being perfected for the generation of electric power on a large scale in the Punjab for transmission to Lahore and Amritsar, the Punjab Power Association of London having been formed for the purpose. The power is to be generated on the Bari Canal and transmitted over a distance of 70 ms. to the first mentioned city and 100 ms. to that named second. Coal at the points of delivery of the power now costs from $5 to $6 per ton, and it is expected that the low price at which electric power will be supplied will give a general interest to industrial undertakings at Lahore and Armitsar. The United Provinces Power Association of London has also been formed to develop hydraulic power on the Junna River and to transmit electric power to Delhi, 140 ms. distant, and possibly to Simla, 95 ms. distant in the opposite direction.

ELECTRICAL ORDERS, JAPAN.—The General Electric Company of the United States has recently received orders from Japan for electrical machinery, as follows; Fusan Electric Company, two 45-kw, belt-driven direct

FAR EASTERN ENGINEERING, CONSTRUCTION, COMMERCIAL AND FINANCIAL NEWS

PERSONAL

VISCOUNT AOKI has been appointed Japanese ambassador to Washington, and Mr. K. Inouye, minister at Berlin, has been promoted ambassador.

MR. H. E. HYDE, C. E., of the office staff of the City Engineer of Manila, has been promoted to 1st-Assistant City Engineer. The appointment dates from January 1st.

MR. ERNEST G. BRABROOK, Manager of the Far Eastern Department of The Link-Belt Machinery Company, of Chicago, U. S. A., has opened permanent offices at No. 23 Yamashitacho, Yokohama, where he will be pleased to continue receiving enquiries for any information regarding the machinery manufactured by his company. Mr. Brabrook has been travelling through the Orient for more than 3 yrs., during which time he has formed a wide business acquaintance. He is now handling an extensive line of high-grade machinery for which there is a constantly-growing demand thoroughout the Far East.

RAILWAYS, SUPPLIES, ETC.

RAILWAY CONCESSIONS, CHINA.—The Peking authorities have notified the foreign ministers that all agreements concerning railways will be cancelled as they expire.

RAILWAYS, PHILIPPINE ISLANDS.—The Islands of Samar and Leyte have been excluded by all bidders for concessionary grants to construct railways in the Philippines.

CHING-HAN (LU-HAN) RAILWAY, CHINA.—A branch of this line, it is reported, is about to be built to Anyang in Honan, where there are rich coalfields, in order to facilitate transportation.

CANTON-HANKOW LINE.—Great excitement has been prevailing among the gentry and merchants of Canton, in consequence of the viceroy's proposal to levy new taxes for the construction of the Canton-Hankow Railway.

CABANATUAN EXTENSION, MANILA & DAGUPAN RAILWAY, P. I.—Governor-General Ide, of the Philippine Islands, recently drove the silver spikes that mark the completion of this line in front of the Cabanatuan station. The event was attended by much ceremony.

ANHUI (CHINA) RAILWAYS.—Lord Li, director of Anhui Railways, recently made a request for a piece of land in the Settlement of Wuhu, but the British consul absolutely refused to consider it. Lord Li has appealed to Peking to communicate with the British minister, asking him to instruct the consul to consent to the proposal.

SWATOW-CHINCHOW LINE.—This railway probably will be opened to traffic during the approaching Spring, as only a small portion of the line remains unfinished. When this line is completed, it is quite likely that the contractors will direct their attention to the proposed Canton-Whampoa Railway, which is to connect with the Swatow-Chinchow.

JAPANESE RAILWAY EXPERTS FOR CHINA.—In response to the application of Viceroy Chang Chih-tung, made through the Chinese minister at Tokyo, for the engagement of two Japanese railway experts, the Japanese authorities have recommended Dr. Haraguchi as chief expert and Mr. Omura, an expert in the Japanese Government railway bureau, as assistant. The experts are soon to enter upon their new duties.

STEAM TRAMWAY, PANIQUE, PROVINCE OF TARLAC, LUZON, P. I.—The Philippine Commission has granted a franchise to the Manila Construction Company to build a steam tramway, sidetracks, etc., from the station of the Manila and Dagupan Railway in the jurisdiction of the Town of Panique, Tarlac, W. to and through that place and the Barrios of Salomague, Cabayacasan, Aduas, Batang, Mabilang, Marini, Matubog and Nibalio, to the Town of Camiling, in the same province. The line will be 2½' gauge.

HOME-MADE RAILS FOR CHINA.—The Peking Government has ordered all railway administrations to satisfy their requirements for rails and other iron works exclusively in China. The Board of Commerce has issued a similar order to all governors, special attention being drawn to the large iron works of Hanyangfu, Hupeh Province, which, it is claimed by the Chinese authorities, can satisfy all demands. The Board of Commerce is of the opinion that the profit out of the contracts for rails and other iron supplies should not be enjoyed any more by foreigners but by the Chinese themselves.

TIENTSIN-CHINKIANG RAILWAY.—The officials of Shantung, Chihli, and Kiangsu, who have been agitating for the cancellation of the Anglo-German railway, have been definitely informed that it is impossible to do this. One minister of state has advised them, however, to defeat the foreign scheme in another way—by getting enough money together quickly and constructing a railway from Tientsin to Techow before the Germans can complete theirs, and in this way render the foreign concession valueless. This proposition appears to have appealed strongly to the interested Chinese who are laboring industriously to carry it out.

SEOUL-WIJU RAILWAY, KOREA.—The Japanese Government has already spent -Y-20,000,000 in the construction of the Seoul-Wiju Railway, and will not have to spend another -Y-20,000,000 in relaying the line. The work will take more than 3 yrs., and the expenditure is to be defrayed from the military funds for the time being. The Masan Railway is also to be relaid so as to make it a substantial and permanent work, instead of a hastily-made temporary affair. The cost will amount to about -Y-1,000,000, and the work is expected to be completed in 1908. A railway department will be established in the residency-general of Korea, to deal with all matters relating to the Japanese Railways in Korea.

ELECTRIC LIGHTING, TRACTION POWER, ETC.

BORNEO CABLE.—The Commercial Cable Company's new cable between Makassar, Celebes, and Balikpapan, Borneo, has been opened for business.

COMMUNICATION WITH ST. PETERSBURG REESTABLISHED.—The Imperial Chinese Telegraph Administration announces that communication with St. Petersburg is again reestablished.

NEW ELECTRIC TRAMWAY, JAPAN.—The Tokaido Electric Tramway Company, organized with a capital of -Y-6,500,000, proposed to construct a line between Shinagawa and Kodzu, on the Tokaido, *via* Yokohama.

PACIFIC CABLE SERVICE EXTENSION.—It is announced by Mr. George Gray Ward, vice-president of the Commercial Pacific Cable Company, that the cable connection between San Francisco and Shanghai and Yokohama will be completed and in good working order by April 1st, next.

TELEPHONE CONCESSION NETHERLANDS INDIA.—A concession has been granted by the Netherlands India Government for a telephone connection between the Island of Great Sambu, Rhio Archipelago, and Singapore. The Royal Dutch Petroleum Company is interested in the venture.

"WALDORF" HOTEL, LONDON.—London is to have a superb "Waldorf" hotel, with all the modern refinements in electric light, motors, elevators, etc. Messrs. J. G. White & Co. (Ltd), of London, branch of Messrs. J. G. White & Co. (Inc.) of New York City and Manila, are the contractors. An initial expenditure of $1,500,000 will be made.

ANOTHER AMERICAN CABLE TO THE ORIENT.—A bill has been introduced in the American Congress, on behalf of the North American Telegraph and Cable Company, which is incorporated under the laws of the State of Washington, U. S. A., for the privilege of laying a cable between Seattle and Manila, and between the same city in America and China *via* the Aleutian Islands, Siberia, Manchuria, and Japan.

ELECTRIC RAILWAY EXTENSION, JAPAN.—The second extended line of the Yokohama electric tramways from Bashamichi to Nishino-hashi, through Samiyoshicho, the front of the customs and Satsumacho, has been opened to traffic. The electric railway between Kanagawa (Yokohama) and Shinagawa (Tokyo) has also been opened. The cars of the latter leave each terminus every 5 mins., and the through fare is 18 *sen* single journey and 34 *sen* return.

ARC LAMPS, MANILA.—The Municipal Board has decided to adopt a new arc lamp, which is erected by the Manila Electric Railroad and Light Company, on the experimental circuit in Ermita and Malate. After 50 of what is known as "enclosed" arc lamps were installed, the company called the attention of the Municipal Board to the superiority of these lights Five hundred of the new lamps will be installed in the city as soon as practicable.

THE TROLLEY IN JAPAN.—The *Kobe Chronicle* thinks there is about to be a boom in electric railways in Japan. The government railway passenger traffic between Kobé and Osaka has been so affected by the Hanjin Electric Railway that the imperial railway working bureau is considering the advisability of establishing an electric line between the two cities, and so meeting the competition. The bureau is also considering the establishment of such a railway between Tokyo and Yokohama. The extent of this competition may be judged when it is considered that the business man living in Kobé, who has to make frequent visits to Osaka, by using the electric railway not only saves enormously in the amount of fare, but travels nearly as quickly. He uses the electric route because of its freedom from soot and dust.

JAPANESE COTTON MILLS.—There is at the present time a strong tendency on the part of the Japanese to turn to England to obtain the equipment for the enlargement and modernizing of their cotton weaving industry. The situation, however, is being closely watched by American importing houses having branches in New York City, and there is a strong belief that steam turbo-generators, which are looked upon with high favor by the Japanese, with electric motors adapted to running looms and spindles in number of 8 or 10, will meet with success. The engineer of the American Trading Company is making a close study of the situation, and says that manufacturers of steam turbo-generators, motors or dynamos can obtain full information in regard to this matter by corresponding with the New York office of that company. This particular matter is being watched closely by representatives of English and German concerns.

VALUABLE FRANCHISE GRANTED IN MANILA, P. I.—The Philippine Commission has granted to the Manila Electric Railroad and Light Company permission to construct an electric tramway line from Manila to the Pueblo of Pasig, beginning at the corner of Calle Cabildo and the Ayuntamiento (palace) in the Walled City, passing in front of the Catholic Cathedral to Calle Claveria, thence W. with double track along the latter street to a point E. of Malecon Drive, thence N along the glacis parallel with Malecon Drive to the Pasig River at the Anda Monument, thence W. along the Pasig River to the E. end of the present quartermaster warehouses, thence around the warehouses with a single-track loop, and the necessary sidings and turnouts. The company has the right to carry freight and parcels over ethe line thus enabling it to transport freight direct from the terminal of the Manila and Dagupan Railway, in the Trozo District, through the city to the wharves and docks which are to be constructed along the Malecon. Under the terms of the franchise the grantee must pay to the treasurer of the Philippine Islands, for the benefit of the City of Manila and the Province of Rizal, 2½ per cent of the gross earnings from the business done under this franchise, and the act of the commission which grants the franchise contains the proviso that the franchise may be withdrawn by the Municipal Board, with the consent of the Philippine Commission, by giving 12 mos.' notice to the grantee. Messrs J. G. White & Co. (Inc.) will construct the extension.

ORDERS FROM JAPAN WITH AMERICAN CONCERNS.—Takata & Co., 10 Wall Street, New York, have secured a contract from the Nippon Seido Riusan Hirio Kaisha for considerable electrical apparatus, orders for which have been placed by their New York office as follows: One Westinghouse 225-kw., 440-volt, 3-phase, 60-cycle, rotating field, alternating current, engine type generator, operating at a speed of 225 r.p.m., direct-connected to a Westinghouse 18 and 36 by 16 compound engine. A 12½-kw, type "S," 125-volt, compound-wound generator has been ordered for an exciter. This exciter will be driven by means of a belt from a pulley on the engine. The order also includes a Type 6-B, 3-phase generator panel and a Type 6-B, 3-phase feeder panel, together with all the necessary instruments, etc., mounted upon it; also one 20-h. p., 400-volt, 3-phase, 7,200 alts., induction motor; one 30-h. p. ditto, one 50-h. p. ditto, and one 75-h. p. ditto. The order also includes a lot of portable instruments, etc. Takata & Co. have also ordered for the same contract, from the Knowles Steam Pump Works, one surface condenser containing 600 sq. ft. of cooling surface, mounted over a combined air and circulating pump, size 10 x 12 x 12 x 12, and one horizontal duplex power pump, double acting piston pattern, size 5½ x 6; speed 50 r.p.m., direct driven by a Westinghouse 7½-h. p. motor; also from the Burt Manufacturing Company, for use on the engine, one standard exhaust head. The contract also calls for one 10x10 air compressor having a capacity of 135 cu. ft. of air at 150 r.p.m. This compressor was ordered from the Bury Compressor Company, Erie, Pa., and is direct driven by a Westinghouse 30-h. p. motor.

MORE JAPANESE ELECTRIC ORDERS.—Takata & Co., New York engineering department, reports the following recent orders from Japan for Westinghouse machinery, etc.: *Takata & Co., Tokio*—Ten 1-kw, type "N" transformers, 7,200 alternations; twenty 2-kw type "N" transformers, 7,200 alternations; twenty 3-kw type "N" transformers, 7,200 alternations; twenty 4-kw type "N" transformers, 7,200 alternations; twenty-five 5-kw type "N" transformers, 7,200 alternations; ten 7½-kw type "N" transformers, 7,200 alternations. *Osaka Arsenal*—One portable wattmeter, single-phase, 7200 alternations; one portable voltmeter, direct current and alternating current; one portable ammeter, alternating current. *Nagoya Industrial School*.... Two 10- h. p. shunt-wound, type "S" motors, 110 volts; two type "K," direct-current, 120-amp. ammeters. *Osaka Arsenal*—Two type 8-A, 250-volt, 3-phase, feeder panels, an extension to a previous Westinghouse installation. *Ashio Mine*—Three 150-h. p. 2,000-volt, 6,000-alternations, 3-phase, type "C," alternating-current induction motors; two 25-h. p., 500-volt, 6,000 alternations, 3-phase, type "C" induction motors; one 15-h. p., 500-volt, 6,000-alternations, 3-phase, type "C" induction motors; one 15-h. p., 500-volt, 6,000-alternations, 3-phase, type "C" induction motor, arranged for gear connection to a countershaft, complete with Laminar fibre motor pinions, gear wheel, etc.; six 75-kw, 2,000-520-volt, 6,000-alternation transformers; three 50-kw, 2,000-520-volt, 6,000-alternation transformers. *Takata & Co., Tokio*—Ten direct-current, enclosed arc lamps, series potential, 200-220 volts, 16 series resistances. *Hokkaido Tanko Railway Company*—One 75-kw, single-phase, alternating-current, revolving armature generator, 7,200 alternations, 2,200 volts, 720 r.p.m., driven by a Westinghouse standard engine, 13½ by 12,; one 2-kw, 125-volt exciter for the above generator; one marble switchboard consisting of one exciter panel, one generator panel, one feeder panel, for the control of the generator and the exciter mentioned above, together with three feeders; ten 5-kw, type "B" transformers; five 3-kw, type "B" transformers.

WATERWORKS AND IRRIGATION

EXPERIMENTAL IRRIGATION, MADRAS.—The Government of Madras is talking of a very large area of land in the Bellery District for the establishment of an experimental pumping irrigation farm on the Hagani River.

CANTON (CHINA) WATERWORKS.—Although the preliminaries connected with the proposed construction of the Canton waterworks are being proceeded with as rapidly as possible, according to *The China Mail*, the viceroy is anxious to have the work completed sooner than was at first anticipated. He has instructed the Prefect of Kwongchowfu to arrange with the foreign contractors to complete the work within 3 mos., as the viceroy is afraid that owing to the undrinkableness of the present water supply public health will be greatly endangered on the approach of the plague season.

PROPOSED WATER SUPPLY, BANGKOK.—An 8" artesian well at Dusit Park, Bangkok, is flowing freely and is capable under air compression of supplying 1,000,000 galls. of water daily, and this fact has led to the consideration of a proposition to utilize artesian water for city consumption. By putting down 10 of these wells in a restricted area, as is frequently done in America, putting air compressors on them and forcing the water into a central well and from that to a standpipe at least 100' high, 10,000,000 galls. of water daily, it is estimated enough for the use of the entire city can be furnished. Besides the healthful effect of pure water upon the inhabitants, the proposed system would solve the question of fire protection, etc.

been found, but the seam is not yet located. *Chromite*—Is being worked. *Iron*—A mountain of very high grade iron ore has been found containing on calculation 15,000,000 tons. *Copper*—Copper ore has been discovered near Tanjong Batu. *Smokeless Coal in Jambongan*—Large floating boulders heve been found in Jambongan Island, one of which weighed 1 cwt. Boring operations are going on to locate the main lode.

India's Gold Mining Returns.—The following are the returns for December, 1905—*Balaghat*—4,400 tons of quartz crushed yielded 3,502 ozs., 2,750 tons of tailings cyanided yielded 313 ozs. and from plates 302 ozs., making a total yield of 4,117 ozs. of gold *Champion Reef*.—Milled 19,720 tons which produced 15,522 ozs., 16,566 tons of tailings treated by the cyanide process produced 2,183 ozs., making a total production of 17,705 ozs. of gold. *Mysore*.—16,650 tons of quartz crushed produced 15,403 ozs., Steamings from plates 1,005 ozs., Basebar (Mills) 239 ozs. and 14,741 tons of tailings cyanided yielded 1,819 ozs., making a total of 18,468 ozs. of gold. *Mysore West*.—Mills ran 679 hrs., crushed 1,879 tons, yielded 1,018 ozs. bar gold. 2,304 tons of tailings treated by the cyanide process yielded 122 ozs. of standard gold. *Nundydroog*.—7,000 tons of quartz crushed yielded 5,186 ozs., 7,290 tons of tailings, cyanided, yielded 650 ozs. and obtained from plates 282 ozs., making a total of 6,118 ozs. of gold *Ooregum*.—Stuff crushed 10,176 tons, gold produced 4,661 ozs. and slimes and tailings cyanided 10,098 tons, produced 918 ozs., making a total of 5,529 ozs. of gold. *Hutti* (*Nizam's*).—851 ozs. of gold from 2,000 tons of quartz crushed and 273 ozs. from 2,000 tons of tailings cyanided, making a total of 1,124 ozs. of gold.

Mining Industry, Burma.—The latest official intelligence regarding the ruby mining industries in Burma comes through a government blue book just published on the administration of the province in 1904-05. The production of the gem during 1904 was practically confined to the ruby mines district. Stones valued at Rs. 13,92,514 were won by the Ruby Mines Company in 1904 as against Rs. 14,68,636 in 1903, though 4,00,000 more truck loads of earth were treated than in the previous year. The royalties paid by native miners fell from Rs. 3,51,910 in 1903-04 to Rs. 2,20,372 in 1904-05, the decrease being attributed to the exhaustion of the more accessible ground. The construction of an important drainage tunnel was undertaken to prevent the flooding of the mines. The total output of gold in 1904 was 215.76 ozs. The Kyaukpazat mine which produced nearly 1,400 ozs. of gold in 1903 was closed during that year, the reef being worked out, and the output of 1904 was obtained almost entirely by dredging. Several concessions for gold-dredging operations were granted by the authorities in 1904 during the course of which a number of applications for exploring or prospecting licenses and for mining leases were dealt with by the government. An expert examination of the gold-bearing rivers of Upper Burma is to be made with a view to the framing of suitable regulations Among other mineral industries in Burma that of jade mining continues to expand satisfactorily. From the Myitkyina mines, the output of jade rose from 1,169 cwts. of the value of Rs. 77,691 in 1903 to 2,244 cwts. of the value of Rs. 1,50,087 in 1904, the value of the exports of the stone to China, which absorbs the whole of the output exceeding in 1904 by Rs. 80,000, the figures of 1903. Dynamite is now freely used in the working of the mines, There is some interesting information regarding the progress of the Burma petroleum industry in the same official report. The total production of oil in 1904 was 115,903,800 galls. or 30,575,313 galls. in excess of 1903. No effective competitor has appeared against the Burma Oil Company, which again largely increased its output. The principal oil-bearing fields are the Yenangyaung field, which has now been extended N. to Singu in the Myingyan District and the Yenangyat field. Efforts were made during the yr. by prospectors to follow up the course of the in rich oil bearing seams of the Yenangyaung and Yenangyat fields, but concessions granted the Lower Chindwin, Shwebo and Upper Chindwin districts and in Thayetmyo and in Prome proved unprofitable. The Arakan oil fields in the Kyaukpyu and Akyab districts also continue to produce oil, but the output was small. Negotiations were in progress during 1904 regarding arrangements for the construction by the Burma Oil Company of a pipe-line to connect the Yenangyaung and Yenangyat oil fields with the refineries at Rangoon for the purpose of reducing the cost of carriage.

MISCELLANEOUS NOTES

Wool for Japan.—Japanese factories are at the present buying most of their wool in the Australian market.

Public Works Department.—The Surveyor's and Engineer's Department of the Municipal Council, Shanghai, is in future to be known as the Public Works Department.

Sugar Refinery Works, Tsingtau, China.—Messrs. von During Wiebel & Co. will shortly erect large sugar refinery works at Tsingtau, to cost about 1,000,000 marks.

Domestic Exhibition Postponed, Japan.—The Japanese Government has postponed indefinitely the sixth domestic exhibition, which should have been opened in 1907.

Oil Operators Amalgamate, Japan.—The leading owners of the oil wells in Formosa, Hokkaido and Aomori have decided to amalgamate their interests with a capital of -Y-1,500,000.

Cardiff Coal Receipts, Hongkong.—During 1905 Cardiff coal to the quantity of 306,280 tons arrived in Hongkong, most of which found its way into Japanese possession during the recent war.

"Open Ports," China.—The Chinese Government has formally notified the foreigng ministers at Peking of the opening to foreign trade of the cities of Chinanfu, Weihsein and Chuosun, in Shantung.

Salt Refinery, Liaotung, Manchuria.—Japanese have formed a syndicate for the establishment of a large salt refinery at this place. The syndicate has already raised $1,000,000 for this purpose. The sale of the salt and the whole establishment will have an official character.

Rizal Monument, Manila.—The Philippine Commission has passed an act which provides for the free entry through the customs of the figure, stone, and other materials necessary for the monument to Dr. José Rizal, the Filipino patriot and martyr, which is to be erected in Manila.

Brick Factories, Hupeh, China.—The provincial administration of Hupeh is establishing brick factories which will be able to supply the demand for the building of public schools in the province. Factories are being built at Tjinkou and in the Spring the manufacturing of brick will be commenced in earnest.

Automobiles in China.—According to an American consular report the American automobile seems to be firmly established in China, and the growth in the sale of these vehicles is very noticeable. The New York Export and Import Company is the only American concern in Shanghai dealing in automobiles.

Lighting Contract, Perak, F. M. S.—Messrs. Huttenbach Bros. & Co. have obtained the contract for lighting the new Kitson lamps at Perak for a period of 2 yrs., 10 mos. Messrs. Tate & Co. will light the present lamps till March 1st, by which time the total number of 84 lamps required will be erected.

Trade Calendars, 1906.—The Far Eastern Review is in receipt of some elaborately-designed and very beautiful trade calendars for 1906. The following firms have contributed:—Alhambra Cigar Factory, The Club Stables, and E. C. McCullough & Co., Manila, and the Morris Machine Works, Baldwinsville, N. Y.

Kerosene Oil Trade, Manchuria.—American kerosene oil has secured a monopoly of this trade in Manchuria, almost completely eliminating the Russian product from this part of China. Sumatra oil continues to compete very strongly with the American product in other parts of China, particularly in South China.

Belgium's Trade with China.—Published statistics give the following as Belgium's trade with China for the past year:—Railway cars, $399,510; machinery (not denominated), $208,866; steel, unfinished, sheets and bars, $434,636; steel, finished, $418,231; brass and nickel, $11,580; cast iron, finished, $12,545; old iron, $3,524; wrought iron, $1,056,096; finished iron, $415,722; galvanized iron $2,509; zinc, $56,742. Total (gold) $3,-019,871.

Wakamatsu Iron Foundry, Japan.—According to the *Jiji* during the late war, the Wakamatsu Government Iron Foundry greatly extended its business. It was able to furnish the military authorities with rails for laying light railway lines; and it built locomotive engines of small size for the same. The blast-furnace was also got to work smelting, and every class of material rquired for the manufactures of arms could be obtained from the Foundry. Thus it is now possible, the journal adds, that the Wakamatsu Foundry, in co-operation with the Government arsenals, may realize the long-cherished hope of manufacturing all classes of weapons without depending on any foreign aid whatever.

American Goods in Manchuria.—An American consular report says that while a large percentage of the coasting steamers fly the British flag, the English-made goods, particularly cottons, do not sell in the Manchurian markets as readily as those imported from America. As a rule, however, the fact that American and English goods are to be relied upon goes far to cause ready sales in that part of the world. The Chinese purchaser feels that American-made goods are safe to buy, and for that reason it has been temporarily profitable in the past to foist upon the Chinese cheap imitations of honest American wares. The protection now afforded by trademarks, jointly by the United States and Great Britain, will practically eliminate this infringement.

Growth of Manufacture, Japan.—According to a report of the minister of finance of Japan, exports of manufactures have increased from $27,000,888 gold in 1900, to $48,306,000 in 1904. Of late the government has made great efforts to assist manufactures. It has held expositions at home, taken part in foreign expositions, established an office to study industrial conditions, assisted the organization of industrial associations, and sent abroad many subjects to study foreign industries. To facilitate the participation of capital in industrial undertakings, the mortgage law was passed last March, according to which the land, machinery, etc., belonging to an industrial establishment constituted a security fund for mortgage purposes.

Aermotors and Windmills, Siam.—The Government of Siam is completing preliminary surveys for an elaborate system of irrigation which is intended to convert much of what is at present waste land or forest into productive fields for the cultivation of rice, the great staple of the country, and also for fruits and vegetables. In order to irrigate their fields from the present system of *klongs* or small canals, which penetrate the area now under cultivation, the Siamese use the most primitive methods, consisting of scoops suspended by a rope from a stick or a kind of treadmill containing small compartments, each of which brings up about 1 pt. of water. Both of these methods are performed by coolie labor. With the introduction of more extensive and scientific systems of irrigation will undoubtedly come a demand for improved methods of raising water for the fields, and this demand should be supplied by aermotors, windmills, and pumping apparatus. One or two American aermotors are now in use there and are giving satisfaction. Recent orders of Danish machinery of this kind have also been given.

Canada's Export Trade with the Orient.—In its export trade the Dominion of Canada is seeking openings in the Orient. It is assumed that whenever the Grand Trunk Pacific completes its line to the coast this result will follow, though the Canadian Pacific already has a line of steamers between Vancouver and Oriental ports A flour trade in competition with the United States is predicted. Mills at Alberta, at Calgary, are now building with the hope of shipping flour to Japan instead of sending all the grain E. in the form of wheat. Four more flour mills are also projected for Vancouver. Whether Canadian goods other than foodstuffs ever will find a large market in Japan and China is problematical The dominion hardly will be able to compete with machinery shipped from the United Kingdom. It is probable that Canada will come within the provisions of the general trade treaty between Great Britain and Japan, application for these concessions having been made. Under this treaty the Japanese tariff against Canada will be reduced on hides, leather, leather goods, condensed milk, sugar, livestock, cotton and woolen goods, paper, enamelware, rubber goods, and hats and caps.

FINANCIAL NEWS

Banking Branches in Kobe.—The projected Kobé branch of the Deutsch-Asiatische Bank has been established. The Russo-Chinese Bank has reopened its Kobé branch.

Banks of Japan.—According to investigations completed by the Tokyo Government, the number of banks throughout Japan are 2,255. Their combined capital is -Y-530,880,819.

Korean Auxiliary Coinage.—The Osaka mint has struck -Y-30,000 worth of 1-*sen* and ½-*sen* copper coins of the Korean auxiliary coinage, which have been sent to Korea for circulation.

Chinese Eastern Railway.—The French minister at Peking is reported to have proposed to the Chinese foreign office that France should furnish China with the money to repurchase the Chinese Eastern Railway from Japan.

Standard China Company.—This company has been organized with a capital of £100,000 in £1 shares to acquire lands, mines, mineral grants, mining rights, concessions, etc., with particular reference to Yunnan, or elsewhere in China.

British North Borneo Company.—It is announced in London that this company has made arrangements for the issue of shares up to 500,000 of its unissued capital. The money received for these shares will be devoted to the general purposes of the company, to the paying off of debentures, and towards the extension of the projected railway across the state to Cowie Harbor.

Money for Mines and Railways, China.—Owing to the lack of funds for promoting mining and railway interests in the provinces of China, the Peking Government is going to raise a railway and mining loan among the Chinese merchants and others, at $500 per debenture bearing 5 per cent interest *per annum*. The loan may be redeemed at any time after the lapse of 30 yrs. from date of issue.

China Provident Loan and Mortgage Company, Ltd., Hongkong.—At the 9th annual meeting of this corporation it was reported that the gross earnings during 1905 amounted to $131,721.22 as against $132,860 for 1904, so the company is able to pay a dividend of 8 per cent and place $20,000 to reserve, which brings that fund up to the round number of $100,000, leaving $4,791.73 to the credit of the current yr.'s account.

Peking Syndicate, China.—The Peking authorities have telegraphed to the Chinese minister at London stating that they have made arrangements with the British minister in Peking regarding the purchase of the Peking Syndicate's Taokou-Chinghua Railway, about 270 *li* in length, in Honan Province, by the payment of £700,000, which will be regarded as a Honan railway loan at 5 per cent interest *per annum*.

Hongkong Land Reclamation Company, Ltd.—The net profits of this company in 1905 were $555,781.09 after paying all charges, which sum includes $4,557.32 brought forward from the previous yr. A dividend of 8 per cent will be paid on the paid-up capital and a bonus of 4 per cent thereon. After providing for this and writing off directors' and auditors' fees there remains a balance of $383,058.73 to be carried to the credit of a new profit and loss account.

Japan's Domestic Debt—The Tokyo authorities announce the redemption of a part of the 6 per cent domestic debt, doubtless with the proceeds of the last foreign loan. The program is that -Y-40,000,000 worth of bonds sold originally at 90, drawn by the lot during the fore part of the current mo., shall be redeemed between March 21st and 31st. Another -Y-40,000,000, redeemable between April 16th and 25th, has also been drawn. The remainder of this particular 6-per cent loan will be reduced between May 16th and 25th.

Hongkong Ice Company, Ltd.—Messrs. Jardine, Matheson & Co., general managers, have submitted a statement of the company's accounts for the yr. 1905. Including $5,356.77 brought forward from the previous yr., and after deducting $20,000 paid as interim dividend of $4 per share, the balance at credit of profit and loss account is $128,776.31 which it is recommended should be appropriated as follows:—A final dividend of $15 per share, $75,000; provision for contingencies, $20,000; to write off property account, $30,000; to carry forward $3,716.31.

Negri Sembilan	..	555.81
Pahang	6,811.20	..
Net decrease		12,467.94

It will be noticed the greatest falling off occurred in Selangor.

The tin revenue is as under:—

	1905. Duty.	1904. Duty.
	$	$
Perak	4,874,820 82	4,607,558.72
Selangor	3,195,317 72	3,138,649.59
Negri Sembilan	939,616 96	888,393.79
Pahang	239,872.01	178,808.87
Nett decrease		12,467.83
Totals	9,249,627.51	8,813,410.97

The above yields an increase of $436,216.54 but a the budget of the four states of the federation only anticipated a revenue of $7,907,400, the surplus is actually $1,542,217.51.

RAILWAYS, SUPPLIES, ETC

SEOUL-WIJU RAILWAY, KOREA.—The Chuwa tunnel on this line has been completed and is now serving the purpose for which it was constructed.

NATIONALIZATION OF RAILWAYS, JAPAN.—The Japanese Government is introducing a bill to the diet to nationalize the railways within the empire.

MANCHURIAN RAILWAYS.—The question is now being discussed in Japan whether to retain or alter the extremely narrow (Japanese) railway gauge, temporarily adopted during the war, on that portion of the East China Railway which fell into Japanese hands. Popular sentiment in railway circles is for the broad gauge.

TIENTSIN-CHINKING RAILWAY —The metropolitan officials who are natives of Chihli, Shantung and Kiangsu decided recently to cancel the agreement about the railway between Tientsin and Chinking, and the viceroy is asked to negotiate with the German authorities to cancel the German portion of the concession.

RAILWAYS IN FUKIEN, CHINA.—Plans have about been consumated to commence work on the construction of these lines immediately It is understood that the line from Amoy to Chan-Chou, 90 *li* long, will be first constructed and put in operation, as a specimen of the whole line to be constructed for the benefit of capitalists.

HSIN-MIN-TUN-TO-MUKDEN RAILWAY.—The Russian authorities object to China constructing a railway from the former to the latter point on the ground that such a line would be in violation of the principle of the Manchurian Agreement which debars any railway coming within 40 *li* on either side of the Chinese Eastern Railway.

ANHUI RAILWAYS, CHINA.—The director-general of Anhui Railways calculates that Tls. 4,000,000 now being subscribed will not be sufficient for all the requirements of the Wuhuh-Kuangtechou Railway, which is about 280 *li* in length, and has decided to raise an additional Tls. 1,000,000. It is expected that actual work will commence in June of the current yr.

HANKOW-CANTON RAILWAY.—A meeting was recently held in Canton to consider the Hankow-Canton Railway scheme and was attended by 10,000 merchants and others. It was agreed that those present should themselves subscribe £2,000,000 in 4,000,000 shares of $5 (Mex.) each A bank to carry out the necessary financial arrangements is already being established. It will be managed by merchants, not by officials.

YUNNAN RAILWAYS.—The Yunnan students who are at present studying in Japan have protested against a British proposal to construct a railway from the frontier of Burma to Teng-yueh, by a British-Chinese company. The students declare that such a step would be tantamount to giving up Yunnan to foreigners, an example of which being furnished by the Chinese Eastern or Manchurian Railway, which was the means of China nearly losing Manchuria to Russia.

RAILWAY IN KANSU, CHINA.—The viceroy of Shen-Kan (Shensi-Kansu) has, in concert with the gentry and representative merchants of Kansu, drawn up a scheme for raising a sum of $1,300,000 for the construction of a railway system in their province. The viceroy has telegraphed the scheme to the Waiwupu and Shangpu, besides telegraphing to the Kansu officials at the metropolis, who are requested to bear a share of the burden in raising the required amount.

RAILWAY INFORMATION WANTED AT PEKING.—The Board of Commerce of the Chinese Government being short of information regarding the railways of the empire, the minister of the board has directed the various viceroys and governors to furnish full particulars of all railway works, together with copies of all official documents and plans, etc, connected therewith. The viceroys and governors are also ordered to do their utmost to raise the necessary funds for pushing on the work of building all urgent railways.

FENGTAI-SHAHO SECTION, PEKING-KALGAN RAILWAY.—The director of the Peking-Kalgan Railway reports the completion of the Fengtai-shaho section which has been opened to traffic. The engineer in-chief, Taotai Chan Tien-yu, will soon receive bids for the construction of the tunnel through Pataling Mountain, which is about 2,000′ in height. The cost of the tunnel is estimated at Tls. 2,000,000. Some reports have it that the contract has already been secured by a foreign firm at Tientsin, but they are not believed to be well grounded.

MEKLONG RAILWAY COMPANY, LTD., BANGKOK —At the first general meeting of the shareholders of this company the directors presented a statement of accounts for the construction of this line. The work on the whole line has proceeded most satisfactorily. Piles for six bridges have been completed and 20 kms. of rails have been laid. The concession cost Tcs. 180,000 and during 1905 advance payments on rolling stock were made to the amount of Tcs. 70,000, and the construction executed represents an outlay of Tcs. 101,200.

RAILWAY LINES, JAPAN.—In the work of laying double lines in the government railways 292 ms. have thus far been completed, while 19 ms. are in course of construction, and 71 ms. are not yet commenced. Of the total of -Y-300 000 set down for repairs of government railways in the budget for the current fiscal yr., -Y-67,000 are meant to be partly for lines under construction and partly for lines not yet started, *viz.*, 16 ms. between Ishibe and Kanaya; 15 ms. S. along the Kakegawa and Tenryugawa; 24 ms. between Okazaki and Atsuta, and 19 ms. between Nagoya and Gifu.

PORT WORKS, DOCKS, ETC.

KAWASAKI DOCKYARD COMPANY, LTD., KOBE.—This company has orders for 31 various vessels. It will extend its works, raising its capital from -Y-4,000,000 to -Y-10,000,000, and borrow -Y-10,000,000 abroad by debentures.

WHANGPU CONSERVANCY, SHANGHAI.—Mr. J. de Rijke, the new engineer for the Whangpu Conservance Board, Shanghai, has arrived in the settlement and indications now point to great activity towards beginning this important work.

NEW WHARVES, ZAMBOANGA, MORO PROVINCE, P. I.—Plans are being prepared for new docks at Zamboanga, the capital city of the Moro Province, which will cost in the neighborhood of ₱90,000. These docks will be constructed so as to admit vessels drawing 30′ of water.

ANOTHER DREDGE OF CALCUTTA.—The Calcutta port commissioners have ordered of Messrs. Wm. Simons & Co., Ltd, Renfrew, a very large sand suction pump dredge, fitted with four sets of independent triple-expansion engines and four large cylindrical boilers, to dredge sand at the rate of 5 000 tons per hr. The new craft will be utilized for the improvement of the River Hooghly.

YOKOHAMA DOCK COMPANY.—This company contemplates an enlargement of its largest dock to the extent of 100′ so that any vessel of 12,000 or 13,000 tons may be docked It also intends to adopt electricity as the motive power in all workshops. The company has first decided to construct a wet dock, on the E and W. sides of which two vessels of over 5,000 tons may be repaired simultaneously. Work on the wet dock has been commenced.

YOKOHAMA HARBOR IMPROVEMENTS —According to the present plan the proposed Yokohama harbor improvement scheme will be extended over a period of 6 yrs, and will require an outlay of about -Y-8,500,000 The City of Yokohama will provide ½ of the sum. It is believed that the municipality will raise the money by a loan, and one of the foreign firms of the city is reported to have applied already to the mayor for permission to take up the whole of the proposed loan.

NEW DOCK, JOLO, MORO PROVINCE, P. I.—The new dock at Jolo has been finished by the Atlantic, Gulf and Pacific Company, and cost the Moro Province which is meeting all expenses of public improvements in that section, about ₱26,000. Steamers drawing 26′ of water can tie up alongside the new dock for discharge, which advantage not only results in prompt discharge of cargoes and naturally a liberal reduction in freight rates, but proves of great convenience to Jolo merchants.

PORT IMPROVEMENTS, PHILIPPINE ISLANDS.—The following sums, or so much thereof as may be necessary, have been appropriated by the Government of the Philippine Islands for public works and improvements by the Bureau of Port Works:—For completion of existing contracts for the new harbor of Manila, and for the continuance of the improvements of the Pasig River, and incidental expenses, -P-500,000; for additional expenses incident to modification of plans for the improvement of the port of Cebu, -P-241,520; for the maintenance of two survey parties to investigate the ports of the Philippine Archipelago which are destined to be railway termini, and other ports, -P-36,000. In all, -P-677,520.

SINGAPORE HARBOR IMPROVEMENTS.—The crown agents for the colonies have announced to the Government of the Straits Settlements that the most favorable tender for the Singapore harbor improvements is that of Sir John Jachson, Ltd., London, at £991,000 with £39,293 added for making the depth of water alongside quayage 18′. This makes a total estimate of £1,030,693, say, allowing for contingencies and exchange, etc., $10,000,000. For this sum the contractors will undertake all the work mentioned in the report of Messrs. Coode Son & Matthews, which has appeared in THE REVIEW, excluding the S and E. moles. Thus what Singapore is to get is the W. mole, lying off Malay Point, and the inner S. mole sheltering this and the Telok Ayer reclamation generally, and also the latter reclamation. In short, the proposed reclamation at Telok Ayer with 18′ depth of water at the quayside and the inner basin, such being the area of water protected by the W. mole and the inner S. mole, the general scheme of a large and extensive harbor as formed by the S. and E. moles being left untouched for the present with the proviso that the contractors may be required if necessary to carry out this work also within 2 yrs. from the acceptance of the present tender. Under the tender the contractors assume all risk with the exception of the possible settlement of rubble in the moles in excess of quantities shown by the contract drawings. The consulting engineers consider this proviso practically negligible as affecting the cost of the improvement. The time required to complete the entire work is 13½ yrs.

SHIPBUILDING, MARINE, ETC.

MITSU BISHI'S FIRST WARSHIP.—The first warship built at the Mitsu Bishi yard at Nagasaki, the destroyer *Shiratsuyu*, 381 tons and 29-knot speed, has been launched.

NIPPON YUSEN KAISHA.—This Japanese steamship company has re-opened its 4-weekly service between Hongkong and Seattle. The monthly service to Australia has also been resumed, the first steamer being *Yawata-maru*, sailing from Yokohama and Nagasaki.

TRIAL RUN OF JAPANESE DESTROYER *Asakaze*.—A trial run of the destroyer *Asakaze*, constructed by the Kawasaki Dockyard Company, Ltd , at Kobé, took place recently, and the result was highly satisfactory to commissioners of the Imperial Navy Department who were on board.

MESSRS. BAILEY & CO., HONGKONG.—A new steam launch built to the order of the China Merchants Steam Navigation Company by Messrs. Bailey & Co., by which firm it was also engined, has been delivered at Foochow. Her name is *Shun Lee*, and she is intended to be used in the private business of the China Mutual at Foochow. She is 55′ long and has a speed of 9½ knots.

ROYAL MAIL STEAM PACKET COMPANY.—This company, the oldest established steamship line in the world, has purchased the goodwill and interest in the Orient Line of the four vessels belonging to the Pacific Steam Navigation Company. The purchase thus consists at the present of *Ortona Ortova, Orwba*, and *Oroya*. These vessels, in conjunction with the Orient Line, now carry the Australian mails to England, and the working of the joint line will be continued as hitherto.

NEW CHINA MUTUAL CARGO STEAMER.—Messrs. Armstrong, Whitworth & Co. recently launched at their shipbuilding-yards in England a large cargo steamer for the China Mutual Steam Navigation Company, of Liverpool *Myrmidon*. as she is named. is of the following dimensions:—Length over all 409′, breadth 49′3″, depth 31′6″. She carries a total dead weight

STEEL SCREW STEAMER "HSIN-KONG"

(Concluded from page 292.)

G. & J. Weir, Ltd., supplied a separate "stand-by" independent dry air pump driven direct by vertical steam engine.

The main bilge pumps, two in number, are placed horizontal on an engine seat and are driven direct by a main crank shaft, with arrangement for overhauling one while the other is working.

A "Hocking" patent distiller of 1,000 galls. capacity per 24 hrs. is fitted on the upper platform of the engine room, steam being supplied by a donkey boiler with a filter and distilled-water connection to the storage tank.

BOILER INSTALLATION.—The main boilers, built by Messrs. S. C. Farnham, Boyd & Co., Ltd., are of large power for the speed of the vessel and are designed to British Board of Trade requirements for a working pressure of 160 lbs. per sq. in. They possess all the latest improvements in boilermaking, the shell plates being in one continuous length and the end plates flanged by special machinery. They are fitted with the usual mountings and are placed thwartship with a large roomy stokehole at the after end.

The donkey boiler, also built by Messrs. S. C. Farnham, Boyd & Co., Ltd., is of the "Cochrane" type, 13′ high by 6′ diameter, designed for a working pressure of 100 lbs. per sq. in., and placed in a recess between the engineroom and the stokehole. It is fitted with a separate feed donkey, and the usual mountings, to allow of steam being supplied to dynamo, winches, steering engine, windlass, heaters, and all auxilliary pumps, etc.

All other engineroom fittings are most complete and include a large stock of spare gear, outfit, Chadburn's telegraph to the bridge, oil tanks, etc.

of 7,000 tons on a moderate draught of water. She will be fitted with triple-expension engines, and the speed designed is about 12 knots.

NEW CHINA COAST STEAMER.—The new steel steamer *Cheong Shing* (Prosperous Promotion), built by Messrs. W. Dodson & Co., Low Walker-on-Tyne, to the order of the Indo-China Steam Navigation Company, Ltd., of London, for its service on the China Coast, was given a successful trial trip recently. This vessel, which is of the spar-deck type, with bridge and forecastle, is of the following dimensions:—Length between perpendiculars, 265′; breadth, 47′; depth moulded, 25′; and she is designed to carry a dead-weight of about 2,600 tons.

CANADIAN PACIFIC'S PACIFIC SERVICE.—The Canadian Pacific Railway Company's SS. *Monteagle*, which has been detached from the company's Atlantic fleet to supplement its intermediate service on the Pacific, sailed recently from England for Hongkong *via* the Cape of Good Hope. The finishing touches to her excellent new passenger accommodations will be given to her at Hongkong, and she will be ready to sail hence for Vancouver, *via* Shanghai, Nagasaki, Kobé and Yokohama, May 2d, making her due at destination May 26th, as per schedule. *Monteagle* is a twin-screw steamship of 5,500 tons.

JAPANESE SHIPOWNERS' UNION.—The Japanese Shipowners' Union is an amalgamation of small shipowners possessing altogether about 180 steamers with an aggregate tonnage of 350,000. A few vessels are large, but most are coasters of moderate tonnage. This union has long cherished a desire to establish a great ocean line, and rumor says that the idea will soon be carried out. There are to be regular lines to Korea, China, Europe, and America, both North and South. It is reported that the company has received offers from South America, Oceania, and China, from people wishing to join. There is talk of raising -Y-20,000,000 capital.

NIPPON YUSEN KAISHA'S EXTENDED SERVICE.—This company's regular European line, taking freight and passengers between Japanese ports, Shanghai, Singapore, Penang, Colombo, Suez, Port Said, Marseilles, London and Antwerp, will be resumed in April, opening with the SS *Bingo-maru*, leaving Yokohama about April 4th, to be followed by the SS. *Sado-maru* or *Kawachi-maru* on or about April 18th; thereafter one steamer every fortnight. The American line, between Hongkong, Shanghai, Japan ports and Seattle (connecting there with the Great Northern Railway), will also be resumed, beginning with *Shinano-maru*, to leave Hongkong April 3d. There will be provisionally a monthly service, after which a regularly fortnightly service will be maintained.

MESSRS. HOWARTH ERSKINE, LTD., SINGAPORE.—The railway department of the Federated Malay States recently placed a contract with this firm for a new tug for use at Port Swettenham. This boat has just been completed under survey of the government marine surveyor with most satisfactory results. At the official trial both speed and towing were in excess of the contract to the extent of ¾ of a knot and 1¾ ms. respectively In the first case 10 knots per hr. was attained, and in the second 6¾ ms. In the experiments two 75-ton tongkongs with 60 tons of cargo in each were towed The scantlings, boiler and engines are in excess of Board of Trade requirements, and the built and finish of the boat have evoked unqualified approbation from those competent to judge, and the work reflects great credit on the firm—Singapore *Free Press*.

FINANCIAL

FUJI PAPER MILL, JAPAN.—This company paid a dividend at the rate of 10 per cent *per annum* on its 1905 business.

FIRE INSURANCE COMPANIES, JAPAN.—In view of the present cut-throat competition, it is proposed to amalgamate the Japanese fire insurance companies.

SHANGHAI-SUMATRA TOBACCO COMPANY, LTD.—This company has declared a final dividend of Tls. 3 for 1905, making in all Tls. 5 per share for the year.

TOKYO STREET RAILWAY.—The net profits of the Tokyo (Japan) Street Railway during the half-yr. ended December 31st, 1905, were -Y-353,822. Two dividends were paid.

TOKYO GAS COMPANY —At a general meeting of the Tokyo Gas Company held at the Tokyo Chamber of Commerce recently, a dividend at the rate of 15 per cent *per annum* was declared for the latter part of 1905.

POSTAL SAVINGS BANKS, JAPAN.—The deposits in Japanese postal savings banks were -Y-33,300,000 at the end of 1904 and -Y-52,000,000 at the end of 1905, showing the remarkable increase in 1 yr. of nearly -Y-19,000,000.

SHANGHAI TUG AND LIGHTER COMPANY, LTD.—This company has declared a final dividend of Tls 3 for the ordinary and Tls. 1 75 for the preference shares, making in all Tls 5 and Tls. 3 50 respectively, for the year ended December 31st, 1905.

W. F STEVENSON & CO., LTD —W. F. Stevenson & Co., Ltd., have been registered in London with a capital of £50,000. and have acquired the business of the same name—merchants, commission agents, etc.—in Manila and elsewhere in the Philippine Islands.

LAOU KUNG MOW COTTON SPINNING AND WEAVING COMPANY, LTD.—This company has written off Tls. 34,039.86 to depreciation account. The working of 1905 shows a credit at profit and loss account of Tls. 178,685.28 including Tls. 10,000 brought forward from 1904.

JAPAN (KIRIN) BEER BREWING COMPANY, LTD.—The report of this company for 1905 shows a divisible balance of -Y-128,702 the paid-up capital of the company being -Y-450 000. The beer tax paid for the year amounted to -Y-183 228, and a dividend of 20 per cent will be paid.

FISHERY BANK, JAPAN.—It is stated that a bill for the establishment of a fishery bank will be introduced into the Japanese Diet shortly. The capital of the proposed bank will be -Y-10,000 000, and the institution will be authorized to issue debentures to the limit of five times its capital.

WEST POINT BUILDING COMPANY, LTD , HONGKONG.—The report of this company for 1905 shows a divisible balance, less the interim dividend of $1.75 per share already paid, of $24,523. It is proposed to pay a final dividend of $1 90 per share, making $3.65 for the yr., and carry forward the balance, $773.

NIPPON RAILWAY COMPANY.—The report of this company for the half-year ended December 31st, 1905, shows a divisible balance of -Y-4 814,191. It is proposed to pay a dividend at the rate of 13 per cent *per annum*, making appropriations to reserve, depreciation, etc., and carry forward -Y-676,072.

TOKYO ROPE FACTORY.—It is announced that the Tokyo Rope Factory in Azabu, which is under the presidency of Baron Shibusawa, is now going to extend its business, and to raise fresh capital to the extent of about -Y-300,000. A branch factory will be established in Kokura, Buzen Province, shortly.

KEIHIN ELECTRIC COMPANY. JAPAN.—At the recent general meeting of this company the balance-sheet for the half-yr ended December 31st, 1905, showed net profits totalling -Y-56,786 15 which includes -Y-309.-36 brought forward from previous account A dividend of 8 per cent *per annum*, amounting to -Y-51,000, was declared.

HONGKONG LAND INVESTMENT AND AGENCY COMPANY, LTD.—The report of this company for 1905 shows a divisible balance, less the interim dividend of $3.50 per share already paid, of $242,839. A final dividend of 3 1-3 per cent has been declared, making 7 per cent for the yr., and the balance, $67,839, has been carried forward to current account.

KIANGSI RAILWAY BANK, CHINA.—It has been decided to locate the railway bank at Kiukiang, while branch banks will be established at Shanghai, Hankow and Nanchang. Funds have already been remitted from the head office of the railway at Nanchang to Kiukiang, for the preliminary expenses of establishing the aforementioned bank.

CANTON-HANKOW RAILWAY.—It was recently ordered that the intending shareholders in the Chinese company formed to undertake the construction of the Canton-Hankow Railway shall pay their subscriptions in 20c pieces. As the capital subscribed at that time was about $4,000,000 and growing rapidly the next thing to look for is a "corner" in 20c pieces very soon.

OSAKA SHOSEN KAISHA, JAPAN.—This steamship company has formally determined to increase its capital stock from -Y-11,000,000 to -Y-16,500,000. The new shares will be offered to the present shareholders at the rate of one new share to every two old ones, and those who intend to take up the new shares must deposit -Y-1 for each new share, by April 15th. On May 1st there will be the first call of -Y-7 per share.

HOKKAIDO COLLIERY AND RAILWAY COMPANY, LTD.—The issue has been made of bonds for £1,000,000 of this company, on the London market. The issue is in 1st-mortgage 5 per cent sterling bonds at 98 ¼ repayable in 1921. The subscription list was to have been kept open three days, but the issue was so well received that it was closed in less than 36 hrs. It is believed that the issue has been taken mainly by investors.

SHANGHAI'S BUDGET, 1906.—It is unofficially announced that the Municipal Council of the settlement estimates the ordinary public expenses for the yr. at Tls. 1,774,000 and that at the end of the period there will be a surplus of Tls. 260,000. This surplus, with that from 1905—about Tls. 220,000—is carried to extraordinary income; but as the extraordinary expenditure is estimated at Tls 529,500,000 there will be a deficit at the end of 1906 of Tls. 47,500.

KOWLOON LAND AND BUILDING COMPANY, HONGKONG.—The net profits of the 1905 working amounted to $15,746 50 as against $18 291 24 for 1 04. This is accounted for by the gross rents being about $800 less, the absence of the item of unclaimed dividends which appeared the previous yr , and by the large sum expended on the drainage and other repairs required by the sanitary regulations. Messrs. T. F. Hough and A. Rodger have been re-elected directors.

SOY CHEE COTTON SPINNING CO., LTD., SHANGHAI.—March 6th the eleventh ordinary meeting of the shareholders in this company was held in the office of Messrs Arnhold. Karberg & Co. The general manager reported that the native cotton crop of 1905 has been a very satisfactory one and the whole of the production sold at very remunerative prices. The working of the yr. shows a balance at credit of profit and loss account of Tls 206,824 19, including an amount of Tls 22,050.78 carried forward from 1904.

HOKKAIDO COLLIERY AND RAILWAY COMPANY, JAPAN.—This company has declared a dividend of 15 per cent on the working of 1905 and carried forward to current account -Y-500,000. A scheme is on the tapis to organize another colliery company in Hokkaido, to be called Ishikari Tanko Kabushiki Kaisha, With a capital of -Y-15,000,000. The promoters are Baron Shibusawa, Mr. S. Asano, Mr. K. Okura, Mr S. Nakamura, and others Half the shares will be offered, in all probability, for foreign subscription.

HONGKONG, CANTON AND MACAO STEAMBOAT COMPANY, LTD., HONGKONG.—The report of this company for the half-yr. ended December 31, 1905, shows that after paying running expenses, etc., there remains, including the sum brought forward from previous account, $104,080.93 at credit of profit and loss account. From this amount a dividend of $1 per share amounting to $80 000 will be paid to shareholders and the balance, $24,080.93 carried forward. The Hon. Mr. C. W. Dickson and Mr. H. Schubart resign their seats at the board and are succeeded by Messrs. W. A. C. Cruickshank and C. R. Lenzmann.

OJO COLLIERY COMPANY, JAPAN.—This company is a joint stock concern which was established some 12 yrs ago, with a capital of -Y-100,000 for the purpose of working one of the Ikawi coal mines It was not a success at the first, and a series of misfortunes brought the company into such a distressful condition that it was on the verge of dissolution, when the management came into the hands of Messrs. Y. Kawai and Y. Hamamoto, as directors. Since then the business of the colliery has assumed a different aspect and at the recent half-yearly meeting of the company a most gratifying condition was reported

SHANGHAI PULP AND PAPER COMPANY.—The report of this company (1905), the paid-up capital of which is Tls. 450,000, is a remarkable good one. The net profit for the year was over Tls 100,000, and after paying an interim dividend of 6 per cent, writing off Tls. 9,362 for additions and repairs, and Tls. 11,090 for depreciation, placing Tls. 12,000 to reserve and Tls. 8,000 to equalization of dividend funds, there remains a divisible balance of Tls. 38,783 (including Tls. 5,968 brought forward from 1904). The directors propose to pay a final dividend of 8 per cent, making 14 per cent for the year, and carry forward the balance, Tls. 2,753 to current account.

BANGKOK MANUFACTURING COMPANY, LTD.—In their report for the half-yr. ended December 31, 1905, the directors of this company show net profits on the sale of ice and aerated waters for the 6 mos. amounting to Tcs. 26,222 From this the usual 6 per cent dividend has been declared. This absorbs Tcs. 16,800. The balance of Tcs. 20,000 due for the premises recently acquired from the Siam Electricity Company, Ltd., is now paid for in full and the debentures amounting to Tcs. 16,500 have all been redeemed. The new ice plant is now under erection When this is completed the company's plant will be capable of producing 32 tons per day, a quantity that should be sufficient to meet the demands of consumers during the next 10 yrs.

MISCELLANEOUS

AMALGAMATION OF SUGAR INTEREST, JAPAN.—It is reported that there is a plan on foot in Osaka to amalgamate all the sugar refineries of Japan, but the negotiations are making slow progress.

MATCH FACTORY AMALGAMATION, JAPAN.—The scheme of the amalgamation of all the match factories of Japan has been completed, and the union is now only waiting for the diet to pass a bill concerning business monopolies, and then the realization of the scheme is expected to be complete.

DEVELOPING CHINESE MANUFACTURES —A supervising censor of the Chinese Government recently presented a memorial to the officials at Peking, calling attention to the fact that the import of foreign manufacturers is daily increasing and that it is imperative for China to establish manufactures of her own, purchasing the necessary machinery from foreign countries. The memorial has been approved

ENGINEERS' ASSOCIATION OF SINGAPORE —At the annual general meeting of the Engineers' Association of Singapore, recently held, the following officers were elected:—President, James Le Mesurier; vice-president, A. Cook; honorary secretary, Alex McLellan; honorary treasurer, James Graham; honorary assistant secretary, William Frew; house committee, W Hepburn, A. Lyon, A. Birnson and W. Houston. The association is in a prosperous condition.

INSTITUTION OF ENGINEERS AND SHIPBUILDERS, HONGKONG.—This association has elected the following officers for the current yr :—President, H T. Richardson; vice-president, J Lambert. R N. R., and E. O. Murphy; committee of management, W A. Crake, W. Ramsay. J. F, Miller. E. C Wilks. W. C Jack, T W. Robertson, A Ritchie, J. D. Morrison, T Skinner, J. D. Logan C F Focken and J. McCubbin. This association has 291 members at the present time.

COTTON MILL INDUSTRY, CHINA —The report issued by the general managers of the Laoukungmow Cotton Mill, Messrs. Ilbert and Co , of Shanghai, of the working of that industry during 1905, is encouraging On a paid-up capital of Tls. 715,800 the actual profit is Tls. 178,685, and the directors pay a dividend of 8 per cent, put over Tls 75,000 to depreciation, or more than double what was set aside the previous year, and are able to carry forward nearly Tls. 31,000.

SUCCESSFUL SUGAR SEASON, QUEENSLAND.—The past sugar season in the State of Queensland, Australia, the only state in Australasia in which sugar is grown, has been a very successful one. The crop for 1904 was the largest since 1898 and the second largest on record. There were 120,317 acres under cane, 82,741 acres of cane crushed and 147,688 tons of sugar manufactured. The by-products consisted of 4,491,407 galls of molasses and 260,289 galls. of spirits. Increased prices were obtained, being $61.04 per ton against $54.32 in 1903 on the basis of 94 per cent sugar.

FAR EASTERN ENGINEERING, CONSTRUCTION, COMMERCIAL AND FINANCIAL NEWS

PERSONAL

DR. KANAME HARAGUCHI, an eminent Japanese, has been engaged as a railway engineer by the Chinese Government, at a salary of -Y-12,000 a year.

MR. W. E. SHELLIM has resigned from the Board of Directors of the Hongkong and Shanghai Banking Corporation, being succeeded by Mr. D. M. Nissim.

HON. F. COOPER, formerly of Hongkong, now director of public works at Ceylon, has been elected first president of an engineering association recently formed at Colombo.

MR. R. PEIRCE has resigned the post of Municipal Engineer of Singapore, the resignation to take effect within 6 mos. Mr. Peirce has been in the service of Singapore for many years and retires on account of the inadequate salary his office pays.

MR. J. W. BEARDSLEY, consulting engineer to the Philippine Commission, has sailed for the United States. He expects to be absent from his post several months, during which time Mr. Kendall, his chief deputy, will have charge of the office.

MR. H. D. C. JONES, manager of the Manila branch of the Hongkong and Shanghai Banking Corporation, has left his post here and sailed for England on a well-earned vacation. During his absence Mr. A. G. Stephen will act as manager of the Manila bank.

MR. M. SERGEY FRIEDE, of New York City, has been appointed general foreign agent of the Chinese Eastern Railway Company, in the commercial freight and passenger departments. He is now in Shanghai, where he will maintain offices of the general foreign agency.

MR. C. G. WARNFORD LOCK, M. Inst, M. M., F. G. S., has just returned to Singapore from a 3 mos. tour of inspection and exploration in Kemaman, one of the little-known independent native states of the Malay Peninsula, and has since been engaged in reporting on extensive tin mines in the neighborhood of Raub. Mr. Lock, until about 1 yr. ago, was general manager of the mines of the Australian Raub Gold Mining Company, Ltd., at Raub, where he was successful in reducing working costs to an exceptionally low figure. He is a well-known and experienced mining authority. Messrs. Charleton, Dickinson & Co., mining consulting engineers, of 353 Mansion House Chambers, London, announce that they have made arrangements with Mr. Lock that he should act as their representative in the Far East. Mr. Lock has opened an office in Singapore and Messrs. Charleton, Dickinson & Co. have arranged to represent him in London.

MR. W. G. WINTERBURN, M. I. N. A., has resigned the office of general manager of the well-known shipbuilding and engineering firm of Messrs. George Fenwick & Co., Ltd., of Hongkong, and will return to his home in England next month. At the recent seventeenth ordinary general meeting of the shareholders of this concern, Mr. A. Rodger, chairman of the board of directors, made the following merited allusion to Mr. Winterburn's retirement:—"Mr. Winterburn, our present general manager, who is leaving the colony in May, has resigned his position after 14 yrs.' service, throughout which time he has worked hard and done his best to promote the welfare of the company. We all wish him, I am sure, every success in his new undertaking." Mr. J. I. Andrew, who has been in the company's service for nearly 10 yrs. and understands the routine of the business, having carried on Mr. Winterburn's duties during his absence on leave for 10 mos. in 1901, has been appointed to succeed him.

RAILWAYS, SUPPLIES, ETC.

PEKING-KALGAN RAILWAY.—The first section of this line, from Fengtai to Nankao, has been opened to traffic.

URGA-KALGAN RAILWAY.—It is proposed to construct a railway from Urga to Kalgan, which will prove an important factor in the development of Mongolia.

LIGHT KOREAN RAILWAY.—The light railway between Ham-hyung, Korea, and the sea coast, has, it is reported, been nearly completed by the Japanese authorities.

HSINMINTUN RAILWAY.—The Japanese have completed the first section of the Hsinmintun-Fengtien Railway, and an agreement has been concluded to hand over the line to the Chinese.

KASHGAR (CHINA) RAILWAY.—The Governor of Shinking has been directed to raise funds for the building of the Kashgar Railway, which is urgently needed to facilitate trade and must be constructed at once.

ANHUI (CHINA) RAILWAYS.—The director of the Anhui Railways has notified the government that Kwang-te-chow is an important commercial center and he proposed first to construct a railway from Wuhu to that place.

RAILWAY IN TIBET.—The Chinese Government has approved a proposal for the construction of a railroad from Chengtu to Lhassa and it is expected that the work of construction will begin as soon as the Tibetan Treaty is signed.

LOCOMOTIVES FOR SIAM.—The Royal Railway Department of Siam has requested tenders for the supply of nine passenger and seven freight locomotives with spare parts. Drawings and conditions may be obtained against payment of Tcs. 5 at the central office of the department at Bangkok.

CANTON-HANKOW RAILWAY.—According to the *Times of Malaya*, the Cantonese community of the Straits Settlements and the Federated Malay States have large financial interests in the Canton-Hankow Railway. In Ipoh, Perak, F. M. S., the Cantonese have taken up over $200,000 worth of stock.

RAILWAY CONSTRUCTION IN BURMA.—Railway construction is proceeding with much activity in Burma just now, and one of the most important works of this kind in hand is the Pegu-Martaban line, whose terminus will be on the bank of the Salween River opposite to the N. end of Moulmein. There is also talk of a railway from this latter place S. to Yeh.

SZECHUAN-HANKOW RAILWAY, CHINA.—This line is to be divided into four sections, three in Szechuan and one in Hupei, *viz.*: Section 1, from Chengtu to Chungking; Section 2, from Chungking to Wanhsien; Section 3, from Wanhsien to I-chang; Section 4, from I-chang to Hankow. The entire length of the line will be 3,600 *li*, only a trifle shorter than the Peking-Haukan Railway.

KOREAN RAILWAYS.—The Japanese Diet has under consideration a bill for the purchase of the Seoul-Fusan Railway and the amalgamation of all the railways in Korea. The cost of purchasing the Seoul-Fusan line is estimated at about -Y-30,000,000, including -Y-15,000,000 capital of the company; and -Y-10,000,000 advanced by the government from special funds.

PENANG HILL RAILWAY, S. S.—Mr. Fryer, chief engineer of the Federated States Railways, was recently asked to report on the Penang Hill Railway, Straits Settlements, the works on which had fallen short of requirements. According to *The Pinang Gazette*, the report is highly unfavorable. It recommends changes and improvements on the line at an outlay so heavy as to stagger investors.

CANTON-KOWLOON RAILWAY.—The viceroy at Canton has asked the Peking Government to leave the construction of the Kowloon-Canton Railway in the hands of the British, owing to the repeated representations which have been made by the British and in view of the approaching commencement of the works at Kowloon. The work of construction may commence at both ends of the line simultaneously.

KIUKIANG-NANCHANG RAILWAY.—It was originally intended that the first Kiangsi Railway should run from Tsai Chai-hu to Kiukiang, but the engineer who is locating the line considers that the route from Tsai Chai-hu is not favorable, so had to change it to begin from Sai-ko. The engineer is now busy at Kiukiang drawing up plans for the proposed new route to be submitted to proper authority for approval.

WATER SUPPLY, BANGKOK.—It has been decided to unite the water supply scheme for Bangkok with the great irrigation scheme which is in progress by the Siamese Government. The new waterworks will, in all probability, be established at Samsen, with all the necessary equipment of reservoirs, filter beds, etc., and the water will be distributed by means of mains throughout the city. The work is expected to occupy about 3 yrs.

SUNNING RAILWAY, SOUTH CHINA.—The promoter and director of the Sunning Railway, South China, for which the full capital has been subscribed by Chinese in America, expects soon to have the line under construction. With this line in operation it is intended to construct a line from Tan Sui Kow to Kongmun, and later on from the latter place to Heungshan. The preliminary survey of these prospective lines is now being arranged for.

PHILIPPINE RAILWAY COMPANY INCORPORATED.—The Philippine Railway Company has filed articles of incorporation with the secretary of state at Hartford Conn., U. S. A. The authorized capital stock is $5,000,000 gold, and the incorporators, all of whom reside in Hartford, are Arthur L. Shipman, Charles Gross, and Alvan W. Hyde. The Company proposes to operate steam and electric railways in the Philippine Islands and elsewhere, and to do a general transportation business.

NINGPO-HANGCHOW RAILWAY.—It is reported from Hangchow that the British minister has refused to cancel the Ningpo-Hangchow Railway Concession, according to *The Universal Gazette*, and that the matter is being discussed between the minister and the Wai Wu Pu. Seng Kung-pao has written to Messrs. Jardine, Matheson & Co., the concessionaries of this line, that the agreement has become void. In reply Messrs. Jardine, Matheson & Co. said that the matter was now in the hands of the British minister at Peking, and that they refused to regard the agreement as cancelled.

STRAITS TO BURMA BY RAIL.—The Province of Tenasserim, Lower Burma, is receiving attention in the matter of railways, and indications are that in the near future Moulmein will become an important railway center. Besides the connection with Pegu, which is rapidly approaching completion, several other schemes are in the air. One is the reconnaissance survey now being conducted towards the Siamese frontier for a line to connect with the Siamese railway system. Another is the survey of a line to Yez, the construction of which will be the first step towards connection with the line in the Straits Settlements.

RAILWAYS IN BORNEO.—It has been decided to construct a line of railway across British North Borneo, the road to form a connection between the E. and W. coasts, and, when completed, will give a total length of 250 ms. The extension will commence at Tenom, 90 ms. from Jesselton, the principal coast terminus on the China Sea, and, traversing some of the most valuable timber lands of British North Borneo, will terminate at Cowie Harbor, on the E. coast. The extension is estimated to cost £1,500,000 and will be constructed in sections. It is intended to grant to the company which will be formed to carry out the scheme alternate blocks of land, each 40 sq. ms. in extent, which can be utilized for rubber, tobacco, etc. It is hoped that the work on this extension will be commenced early next year.

RAILWAY CONSTRUCTION, PHILIPPINES.—Mr. H. A. Belden, general manager of Messrs. J. G. White & Co., Inc., in the Philippine Islands, has received a letter from the home office of his company in New York City to the effect that preparations for the active work of constructing the railway lines on the islands of Cebu, Panay, and Negros, are now under way. Plans and contracts for material are all being arranged in New York. The home office is sending out a staff of expert field engineers for survey work, and Mr. Belden says that when work is well under way fully 5,000 men will be employed, at least 300 of which will be Americans. Filipino common labor will be given preference over other such labor if it is forthcoming. If not resort will be taken to Japanese labor. Most all the carpenter work will be done by Japanese.

RAILWAYS IN NORTH BORNEO.—It has been decided to construct a line of railway across British North Borneo, according to latest London advices. The line will form a continuous connection between the E. and W. coasts, and, when completed, will be of a total length of 250 ms. The extension will commence at Tenom, 90 ms. from Jesselton, the principal coastal terminus on the China Sea, and, traversing some of the most valuable timber lands of British North Borneo, will terminate at Cowie Harbor, on the E. coast. The extension is estimated to cost $1,500,000, and will be constructed in sections. It is intended to grant to the company which is to be formed to carry out this scheme alternate blocks of land, each 40 sq. ms. in extent, which can be utilized for rubber, tobacco, etc. A considerable portion of the line, which runs close to the Dutch boundary, will traverse country inhabited by some of the wildest tribes of these regions.

LOCOMOTIVES FOR CHINA.—For working traffic over the Shanghai-Nanking Railway, Messrs Robert Stephenson & Co., Ltd., of the Springfield Works, Darlington, are now completing 10 powerful 4-coupled bogie locomotives, to the specifications of Messrs. Sir John Wolfe Barry and Partners. These locomotives, the first lot of which have already been shipped from Middlesbrough, are built for the 4′8½″ gauge, have been constructed upon American lines, and are of very liberal dimensions, as the width over the platforms is no less than 9′. The cylinders are 18×20″ with ordinary "*D*" slide valves between the frames, operated by the simple Stephenson link motion reversed by a wheel and screw on the left hand side of the engine. The four coupled wheels have a diameter of 6′7″, and the bogie wheels a diameter of 3′6″, the fixed wheel base being 8′3″ and the total wheel base 25′2″. The boiler barrel has a maximum outside diameter of 4′10⅝″, and a length between tube plates of 13′0″ the length of the fire-box shell being 9′ (outside). The working pressure of the boiler is 180 lb. per sq. in. The boiler is fitted with brass tubes, each 2¼″ in diameter, giving a heating surface of 1,467.39 sq. ft., whilst the fire box provides an additional 162.61 sq. ft., the total heating surface therefore being 1,630 sq. ft. The grate area is 28 sq. ft., this being to allow of the use of inferior coal. The engine is fitted with the Westinghouse quick-acting brake, the pump being fixed on the right hand side of the smoke box. The 4-coupled wheels of the engine and the tender wheels only are braked. The engine and tender have an aggregate weight on rails of 98 tons 7 cwts.

ELECTRIC LIGHTING, TRACTION POWER, ETC.

SHANGHAI-MANILA CABLE.—The Shanghai-Manila submarine cable, the laying of which by the steamer *Silvertown* required about 11 days, has been completed.

WIRELESS TELEPHONE, JAPAN.—According to a telegram from Tokyo to Shanghai a naval engineer named Kimura has succeeded in inventing a wireless telephone.

BOOM IN ELECTRIC RAILWAYS IN JAPAN.—According to *The Japan Chronicle*, there is about to be a boom in electric railways in Japan to the detriment of steam-power lines.

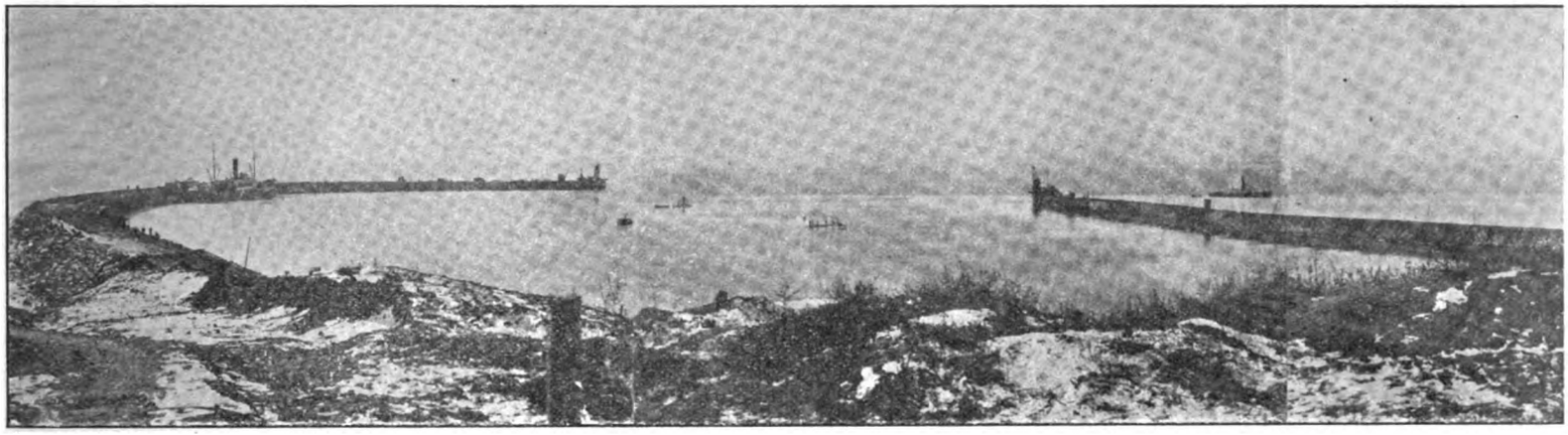
ELECTRIC RAILWAY FOR KOBE.—The Kobé Assembly having agreed that a charter be granted to a private company, the syndicates formed for the purpose of carrying electric railways into the city will be incorporated into one body. It is expected that the company will draw its motive power from the Kobé Electric Light Company.

THE FAR EASTERN REVIEW

COMMERCE ✪ ENGINEERING ✪ FINANCE

VOL. II. MANILA, P. I., SHANGHAI, AND YOKOHAMA, MAY, 1906. No. 12.

INDUSTRIES OF THE CHINESE ENGINEERING AND MINING COMPANY, LTD., NORTH CHINA



PORT OF CHINWANGTAO, PROPERTY OF THE CHINESE ENGINEERING AND MINING COMPANY, LTD.—HALF VIEW, COMPLETED IN ILLUSTRATION BELOW

One of the notable and successful enterprises of North China are the industries of The Chinese Engineering and Mining Company, Ltd., the general offices of which are located at Tientsin. The company is composed almost exclusively of British capital, and the controling interests are held in London. Major W. S. Nathan, R. E., a competent and experienced engineer, is agent and general manager of the company, and at the recent annual meeting of the shareholders the latter paid a high tribute to his conduct of their affairs.

The Chinese Engineering and Mining Company, Ltd., does not confine its operations to coal mining and the manufacture of coke, but also controls the "Tangshan" cement works; has a large firebrick factory; does an extensive shipping business, and executed engineering work in the large and well-equipped shops at Tongshan. In placing the output of the coal mines and the manufactured materials on the market, the company brings into use its canal running from Hsu-ko chwang to Lutai; its private telegraph line between Tientsin and Chinwangtao; its branch railway line from Tangho to Chinwangtao; its steamers —the "Ping" Line—and the port of Chinwangtao, also the property of the company. It will be seen, therefore, that the Chinese Engineering Company, Ltd., besides being one of the largest foreign firms in the East, is singularly complete and self-contained, while the following details will show that the company is quite up-to-date and well abreast of the times:—

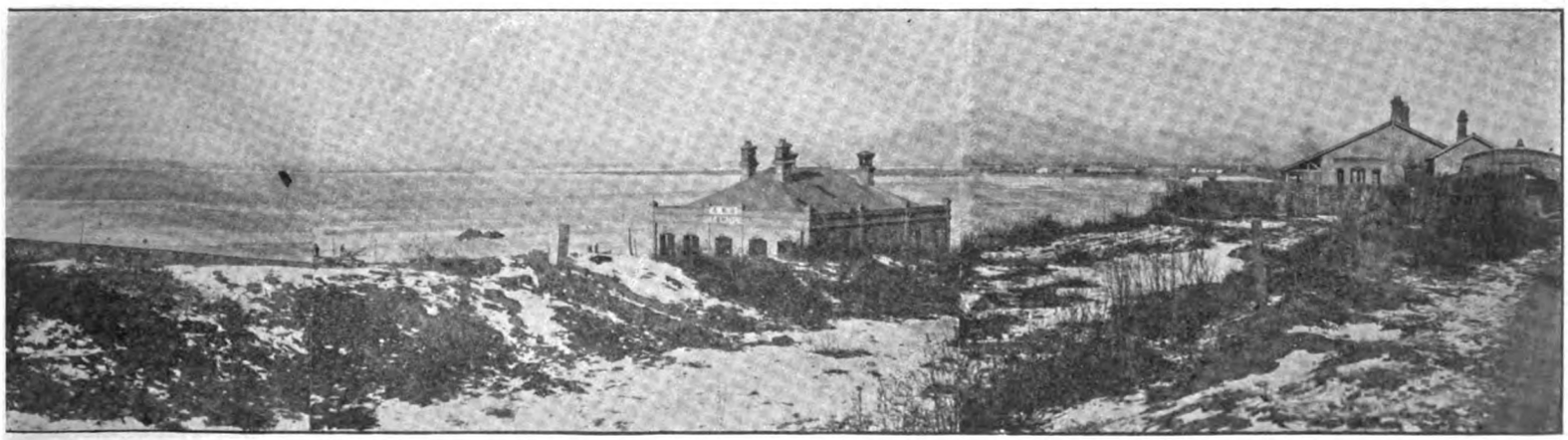
COAL MINES.—The coal mines, situated in the Kaiping District of the Province of Chihli, are extensive and might be said to be inexhaustible. The present output of 3,000 tons per day is unfortunately not nearly sufficient to meet the demands, and the company is pressing forward with all possible speed the erection of the largest electrical plant in the Farthest East, on the completion of which there will be sufficient power to handle up to 8,000 tons per day.

These mines play a very important part in the industrial development of North China, the coal being consumed on all the railways, by the various foreign navies; the Imperial Chinese mints and arsenals, and by practically all the coasting steamers touching at northern ports.

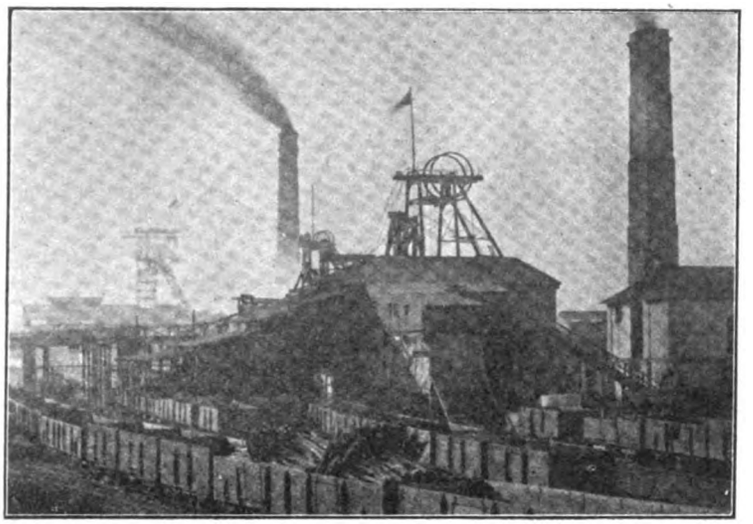
The Chinese are very large users of dust coal not only for domestic purposes but also for brick-burning, bean-oil factories, and distilleries.

COKE MANUFACTURE.—The manufacture of coke is one of the Chinese Engineering and Mining Company's new industries which promises to become a large business in the near future. The coke is manufactured in several grades, the "Special" quality being equal to any produced in Europe and finds a ready market in the government arsenals, mints, and dockyards, where only the best material can be used. When the output of coal will have been increased, following upon the erection of the new electrical plant already referred to, the erection of modern coke kilns will be considered.

(Continued on pages 336-337)

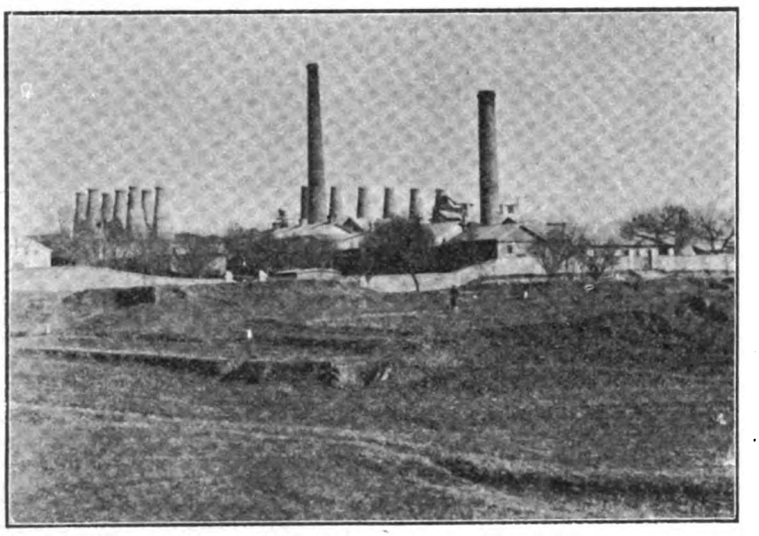


PORT OF CHINWANGTAO, PROPERTY OF THE CHINESE ENGINEERING AND MINING COMPANY, LTD.—HALF VIEW, COMPLETED FROM ILLUSTRATION ABOVE

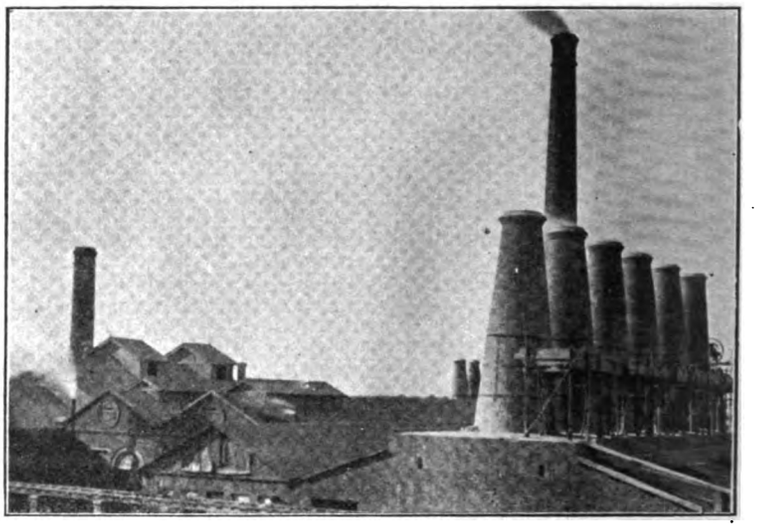


TONGSHAN COAL MINES

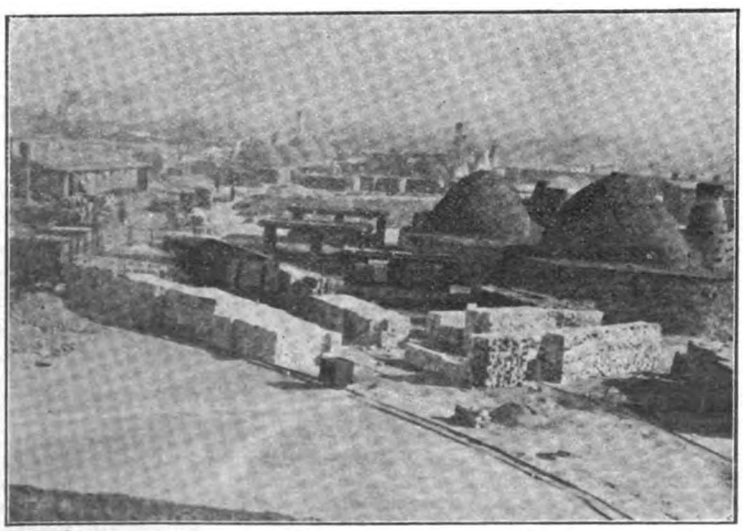
ANOTHER VIEW OF THE TONGSHAN COAL MINES



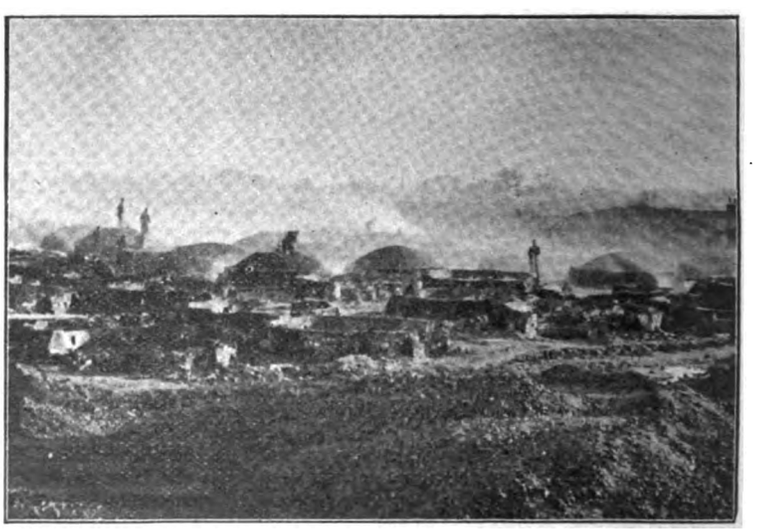
"TONGSHAN" CEMENT WORKS



ANOTHER VIEW OF THE "TONGSHAN" CEMENT WORKS



FIREBRICK FACTORY



COKE MANUFACTURE

INDUSTRIES OF THE CHINESE ENGINEERING AND MINING COMPANY, LTD., NORTH CHINA

(Concluded from page 333)

ENGINEERING.—The company has reorganized and extended its workshops at Tongshan, including the installation of a modern and efficient plant for turning out all kinds of iron work, machinery and repairs in an expeditious and workman-like manner. The workshops are under the constant supervision of experienced European engineers. A large stock of all classes of material from the best makers is kept at Tongshan under the superintendence of a foreign storekeeper.

MINING REPORTS AND ASSAYS.—At its fully-equipped laboratory at the mines the company is prepared to give reliable assays and to undertake analytical work. The company will also undertake to survey and report upon mining concessions in the Province of Chihli, and to carry out borings and other preliminary investigations.

CEMENT WORKS.—The company controls the "Tangshan" cement works—the first cement factory erected in Chinese territory—where is manufactured the well-known "Tangshan" brand of cement. This factory is situated amidst the limestone hills N. of Tong colliery where limestone and clay are found in abundance and of unusually good quality. The minute control given to the manufacture by European cement experts, resulting in evenness of quality, has brought this brand of cement into prominence to such an extent that the output is not nearly sufficient to cover the larger demand and the question of increasing the plant is now under consideration. It should be noted that the cement has always secured gold and silver medals whenever it has been placed on exhibition.

The cement works also manufacture numerous by-products, the most important being flooring tiles in cement and clay. As a new industry in the East the manufacture of the cement flooring tiles—called cement mosaic tiles—is worthy of special attention. The base of these tiles is of concrete, the face of a mixture of fast colors and cement worked into any of the large assortment of designs in stock.

FIREBRICK FACTORY.—From the time when the coal mines were placed under European management there has been a considerable demand for firebricks for lining the several shafts and as supports underground, and the firebrick factory has up to quite recent times met only this demand. The excellent quality of the fire clay and the practically unlimited supply of that material have induced the company to place its firebricks in the Eastern market with very agreeable results. From a few thousand bricks, the output has increased to 2,000,000 per month. Unfortunately for the company, the demand is not nearly met and the general impetus to all local industries following in the wake of the extension of railways, the erection of mints and other public works has made it imperative that the factory should be considerably extended. These extensions are now being pressed forward as rapidly as possible. It is no exaggeration to say that these firebricks are unequalled in the Far East, while it is held in some quarter that they are superior to the best Scotch firebricks. A considerable business is also done in fireclay pipes, boiler sealing blocks, free covers and special bricks of all shapes and sizes.

SHIPPING.—The company possesses a fleet of steamers specially suited for the coast trade of China. These vessels are fitted with first-class accommodation for passengers, and the larger ships are fitted with electric light.

A considerable export trade in coal, firebricks, cement and general cargo is done with Newchwang, Chefoo, Weihaiwei, Tsingtau, Shanghai, Hankow, Hongkong, Canton, and other ports. The import trade, consisting mainly of piecegoods and general cargo, comes principally from Shanghai, but a good trade is also done with the abovementioned ports.

The company has its own wharves and godowns at Tientsin, Chinwangtao, Tongku, Shanghai, and Canton, and also godowns and property storage of cargo at Newchwang and Chefoo.

The shortest sea route between Tientsin and Shanghai is *via* Chingwangtao. The company's steamers leave Chinwangtao for Shanghai on the arrival of the mail trains from Peking and Tientsin, and incoming steamers are timed to connect with the morning mail train.

The company's new steamer, *Kaiping*, offers the most comfortable, rapid and sure means of communication between Shanghai and Tientsin or Peking. The journey occupies about 60 hrs. and is independent of the uncertainty and delay, due to the bar, attaching to the Tongku route.

LUTAI CANAL.—This canal, from Hsu-ko-chwang to Lutai, a distance of 15 ms., connects with all the waterways of China.

PORT OF CHINWANGTAO.—Chinwangtao is an ice-free port in the Gulf of Pechihli, situated approximately lat. 39° 55′ N., Long. 119° 38′ E. The Chinese Engineering and Mining Company, Ltd., owns the land in the vicinity of the port, and has constructed a breakwater and pier for the accommodation of shipping. At present six berths are available, the approximate depths of water being as follows:—

	Low Water.	High Water
Alongside pier (length 300′)	16′	21′
Alongside breakwater (length 1800′)	20′	25′
	18′	23′
	17′	22′
	16′	21′
	14′	19′

Dredging operations are in progress with a view to increase the depth to 25′ alongside berths. There is good sheltered anchorage in The Roads.

The company's branch line to Tongho Junction connects the pier and breakwater with the main trunk line of the Imperial Railways of North China (Peking to Newchang) and trains from the harbor are run to connect with all mail trains. Cargo is loaded direct from the ship's holds on to cars and *vice versa*, so that a minimum of handling and consequent freedom from loss and damage are ensured.

Chinwangtao is the natural distributing centre for the Northwest part of the great Province of Chihli. The facilities, resulting from the company's liberal expenditure of capital, for the rapid and economical handling of cargo, have caused Chinwangtao to become also a formidable rival for the trade hitherto shipped through Tongku for Tientsin. A considerable portion of this trade throughout the year now passes through Chinwangtao, whilst during three months of winter, when the Pei-ho River is closed to navigation, the whole trade of Tientsin is carried on without interruption through this channel.

Godown accommodation and covered storage are obtainable.

The facilities for quick despatch may be gauged from the fact that a steamer was recently loaded with 2400 tons of coal in 13 hrs. There are three steam cranes to lift up to five tons, and arrangements can be made to lift weights of 15 tons. The expense, delay, and damage entailed by the lighterage of steamers which must be encountered at Taku Bar are here entirely obviated.

The great increase of trade year by year has induced the Imperial Maritime Customs to specially erect a fine custom house with a deputy commissioner in charge, and to open a Haikwan Bank for the convenience of local consignees.

The natural geographical advantages of Chinwangtao caused it to be selected as the port of embarkation for the emigration of coolies to South Africa, and during 1904 an extensive depot was established, where the coolies are received, medically examined and lodged before embarkation on the fine transports specially engaged in this business.

As a seaside health resort Chinwangtao is unrivalled by any other place in China. Situated midway between Shan hai-kwan and Pei-tai-ho, its easy access from all parts, dry and bracing climate, safe bathing from a beautiful sandy beach, and its magnificent views of sea and mountain ranges are but a few of the most salient attractions which impress a visitor to this delightful summer resort.

HOTEL.—There is a good hotel close to the piers and beach, where under competent European management every comfort and attention are ensured. The growing influx of visitors has induced the company to turn its attention to the erection of an up-to-date hotel, in which every modern improvement is introduced, and which will shortly be completed.

That portion of the property known as The Bluff, and comprising the best residential and business sites, has now been laid out as a township, and plots may be bought or leased on moderate terms.

The company's telegraph line between Tientsin and Chinwangtao places the latter port in telegraphic communication with all parts of the world.

FEDERATED MALAY STATES RAILWAYS

Here is what a resident of Ceylon has to say about the railways of the Federated Malay States, after completing a tour of the lines:—

The trains on the Federated Malay States railway system, metre gauge, are punctual to a fault. Accustomed to a minute's grace in Ceylon I missed the second train I attempted to catch—at Simpang station on a branch line in Perak. Admittedly there are no complications save at one place, dignified by the name of the "pass," where sliding earth exists like the Haputale slope, though with no impressive scenic surroundings to hold the traveler. A rule is said to exist, as in Ceylon, against drivers attempting to make up lost time; but a little reasonable latitude, though rarely needed, is evidently allowed.

The trains run smoothly, too, but over many bridges they rattle as though the heavens above had opened and innumerable dollars were crashing down. On some of the branch lines the trains run the same on Sundays as on week days. The appointments at the chief stations eclipse in cleanliness and sanitation anything to be found in Ceylon; and "smoked" windows for lavatories in the train is an idea worth copying. Children are conveyed to and from school free. The schoolmasters give out the tickets and each boy receives two singles—one to take him home and the other to bring him back. Neat little pocket time-tables are prepared by the department and are circulated free—they are not distributed broadcast, but they can be obtained; and they also have useful informations about the coasting steamers, etc.

Another wrinkle, for improved lighting, is the placing of four mirrors at an angle of 45 degrees round the lights in the compartments—the provision is there, though it has to be little used—enabling one to read comfortably by oil lamp. Corridor trains are run on the true Western principle, and a traveler can, if pressed for time, pay the ticket collector *en route*. Many Jaffna Tamils are employed on the railway in various capacities; but the occasional Chinese station-master, in his neat white uniform and white-covered straw hat, arrests the visitor's attention most of all. No return tickets are issued; they were abolished when a reduction of fares took place.

FAR EASTERN ENGINEERING, CONSTRUCTION, COMMERCIAL AND FINANCIAL NEWS

RAILWAYS

CHINESE AMUR RAILWAY.—The Chinese Government has granted the application of the Tartar General of Amur Province for permission to construct a railway from Hulun to Tsitsihar and Aigun.

KAGOSHIMA RAILWAY, JAPAN.—Preparations are being made to resume construction work on the section of the Kagoshima Railway between Hitoyoshi and Yoshimatsu. This work was suspended during the late war.

RAILWAY SLEEPERS FOR CHINA.—A leading Chinese merchant in Sydney says there is a splendid market for Australian ironbark sleepers in China just now, where there are in course of construction and projected upwards of 50,000 ms. of railway lines.

SEOUL-GENSAN RAILWAY, KOREA.—Major-General Yamane, superintendent of military railways in Korea, has submitted to the resident-general a full plan for the construction of the Seoul-Gensan Railway. Work on the line will be started very soon.

NEW RAILWAY FOR MANCHURIA.—Representatives of the gentry and merchants of Kirin have recently been conferring with the Peking authorities concerning the construction of a railway between Kirin and Changchun. The government has agreed to contribute Tls. 800,000 towards the expenses.

LABOR TROUBLES IN YUNNAN.—The Governor of Kwangsi Province, China, reports to Peking that the French authorities have approached him in connection with the frequent desertions of the coolies employed on the construction of the Yunnana Railway, and asked to prohibit this breach of contract. He states that he has informed the French that if the coolies are properly treated they will not desert.

RAILWAYS IN SHANSI, CHINA.—It has been finally decided by the gentry and people of Shansi to build the Tatung-fu and Pu-chou railways themselves without the aid of foreign capital. These railways will consist of three lines, as follows:—(1) From Tatung-fu to Kalgan, passing through Shio-ping-fu, Chi-hua-cheng, and Shuyuan-cheng; (2) from Pu-chou to Tung-kuan in Shensi, passing over the Yellow River; (3) from Ping-wang Tsechou, connecting with the Taokou-Tsechou Railway.

KOWLOON-CANTON RAILWAY.—The control of the British section of the Kowloon-Canton Railway has passed out of the hands of the Hongkong Public Works Department, and will be constructed under the direction of Mr. Graves William Eves, whose appointment as chief resident engineer-in-charge has been announced. The appointment was made by Sir Matthew Nathan, governor of Hongkong, under instructions from the Secretary of State for the Colonies.

CENTRAL-EASTERN RAILWAY OF JAPAN.—The construction train of this line is already running on the Shiojiri-Ohaya section of the Government Central-Eastern line. When this section is completed the connection of the Kobu Railway with the Shinohoi line will be effected. The construction of the Toyama-Naoyetsu Railway will be commenced this year. This work will take 8 yrs. to complete and will cost -Y-14,376,000, the work to be started from the Toyama end.

YUNNAN RAILWAY.—The French minister of the colonies has presented a bill to the president of the French Republic authorizing the government to take the necessary measures to complete the Laokay-Yunnan Railway to the capital of the Chinese Province of Yunnan. The reason for this is that the contractor who undertook to construct the line has found himself unable to proceed with the work owing to unexpectedly serious engineering difficulties and partly to the impossibility of obtaining labor. Experts will be appointed to report on the situation to the French Government.

PEKING-KALGAN RAILWAY, CHINA.—The chief engineer of this line, Taotai Chang-tien-yu, in making surveys of the railway, has found that the laying down of rails, the construction of bridges, the appropriation of land, the erection of stations and the boring of an 80 fathom tunnel through the Pa ta-ling Mountain, will cost altogether Tls.7,000,000. Last year, from the revenue derived from the Peking-Shanhaikuan Railway, Tls.1,000,000 were devoted to the construction of the Peking-Kalgan line. All those employed on the line, from the chief engineer to the commonest workman, are Chinese.

RAILWAY NATIONALIZATION, JAPAN.—The Railway Nationalization Bill, recently passed by the Japanese Diet, has been thoroughly amended by a special committee. The railways to be purchased have been reduced to those belonging to the following companies:—Hokkaido Colliery and Railway Company, Hokkaido Railway Company, Nippon Railway Company, Ganetsu Railway Company, Hokuetsu Railway Company, Kobu Railway Company, Sobu Railway Company, Boso Railway Company, Nanao Railway Company, Kansai Railway Company, Nishinari Railway Company, Sangu Railway Company, Kyoto Railway Company, Hankaku Railway Company, Sanyo Railway Company, Tokushima Railway Company, Kyushu Railway Company. The purchase is to be completed within 10 yrs., beginning with the current year, and the purchase money will all be paid in 5 yrs. after the date of taking over.

ELECTRIC LIGHTING, TRACTION POWER, ETC.

TOKYO-KOBE-MOJI TELEPHONE LINE.—This line, which has hitherto been used exclusively for military purposes, has been opened for public service.

STREET RAILWAY EXTENSION, TOKYO.—The Mihara-bashi-Horaibashi section of the Tokyo street railway, which prolongs the system from Tsukiji to Shimbashi, has been opened to traffic.

HANKAKU RAILWAY COMPANY, JAPAN.— A scheme proposed by the Hankaku Railway Company to lay a track of 20 ms., between Ikeda and Umena Station in Osaka, has been sanctioned by the government. The system will be converted into an electric line.

WIRELESS TELEGRAPHY, ZAMBOANGA, P. I.--The installation of the wireless telegraphy station at Zamboanga, Moro Province, is now about completed, and work will now begin on the erection of building and the installation of the apparatus for the station at Jolo, in the Sulu Archipelago.

HONGKONG ELECTRIC COMPANY, LTD.—At the recent annual meeting of the shareholders of this concern, the manager reported that the number of lamps, fans and motors connected with the company's supply service on April 1st was equivalent to upwards of 39,500 lamps of 8 candle power; 85 arc lamps are maintained by the company, and 20 electric lifts are being operated by the power service. The new chimney at the plant was completed and brought into service in September, while a shed has been constructed at the works to provide further accommodation for storage of material. The work of laying underground feeder and distribution cables from the works through the center of the city was completed in October. At the present date the main cables have all been laid and it is expected that the new distribution system will be brought into use about June 1st, when the various service cables, which are now being laid, will be connected up.

PUBLIC WORKS

BAGUIO-TRINIDAD ROAD, BENGUET, P. I.--A new road through the Trinidad Valley to Baguio has just been completed by the provincial government of Benguet, at a cost of but ₱4,300.

SEWER CONSTRUCTION, MANILA.—Major J. F. Case, M. Am. Soc. C. E., chief engineer of the sewer and waterworks construction in Manila, has submitted plans to the Municipal Board for the pumping stations to be erected in connection with the new sewer system of Manila.

MILITARY CANTONMENT, BAGUIO, P. I.—The residence of the commanding general of the Philippines Division and two other cottages have already been constructed on the military recuperation camp in the mountains of Benguet Province. Three other cottages are now in course of construction.

TOPOGRAPHICAL SURVEY, MANILA.--The city has made a topographical survey of Intramuros between Bagumbayan Drive and Calle Aduana, which has been united with the survey of the Malecon. This survey furnishes a rational basis for the improvement of the land between Bagumbayan and the city hall, and makes possible a scheme for the subdivision of the reclaimed area.

PROVINCIAL HIGHWAYS, PHILIPPINE ISLANDS.—The Philippine Commission has prepared a law soon to receive public discussion which includes a plan to improve the public roads of the Islands. The most important feature of the proposed act is the clause which makes it compulsory for every male inhabitant of the Philippines of 18 yrs. of age and under 55, with certain exemptions, to labor on the public highways, bridges, wharves or trails for five days of 8 hrs. each, every calendar year, or pay the equivalent in cash of such days' labor.

NEW BRITISH MILITARY WORKS, ETC.—*Colony of Hongkong and Weihaiwei.*—The British army estimates for the Far east for 1906-7 make the following estimates on new works in the Colony of Hongkong:—General service, including headquarters' offices, Army Service Corps stores, etc., £5,000. The total estimate for the work is under consideration. Married quarters, £5,000. The total estimate for the work is £7,000. Tramway from magazine to arsenal yard, £100. The total estimate for the work is £8,500, this having been raised from £8,200. Nine-tenths of the cost is to be borne by the Admiralty. Reconstruction of workshops and refitting stores handed over by the Admiralty, £1,040. The total estimate for this work is £2,290, the estimate being reduced from £5,000 To provide for a landing and shipping shed, £1,003. The total estimate for the work is £2,480. *Settlement of Singapore.*—Water supply at Blakin Mati, £2,000. The total estimate for the work is £8,500 (a provisional estimate. Accommodation for Ordnance Department, £660. The total estimate for the work is £54,180. The estimate has been reduced from £55,520, and £25,470 is to be repaid by the Admiralty.

PORT WORKS, DREDGING, DOCKS, ETC.

BIG DOCK PROJECT, JAPAN.—American, English and Belgian capitalists are reported to have finally arranged for the construction at Tanoura, near Moji, of a big dock capable of accommodating 20,000-ton steamers.

STAR FERRY WHARF, HONGKONG.—The new ferry wharf at Kowloon has been opened to business. It is a fine, massive structure, compared with the wharf it supercedes, and has separate compartments for first and second class travellers, besides being excellently lighted at night.

RIVER DYKES, TARLAC, P. I.—The Philippine Commission has appropriated ₱16,000 from the Congressional Relief Fund for the construction of dykes through the Pueblo of Tarlac, N. Luzon, in addition to ₱9,000 heretofore appropriated and raised by the province of Tarlac and the municipality.

YOKOHAMA HARBOR ACCOMMODATIONS.—The lower house of the Diet has approved of the government proposal to assist Yokohama in improving the harbor accommodations there. The government will undertake the work at the maximum cost of -Y-8,180,000 and the municipality must refund the outlay to the extent of -Y-2,700,000 to the government in the next 6 yrs. The city has to pay -Y-500,000 in each of the first 3 yrs. and -Y-400,000 in each of the succeeding 3 yrs. When the proposal is finally approved by the House of Peers, Yokohama will float a loan amounting to -Y-3,000,000.

FLOATING DOCK FOR KOBE.—It is announced that the Mitsu Bishi Kaisha is making arrangements for the construction of a great floating dock at Kobé capable of receiving vessels of over 10,000 tons. The company is desirous of making the dock sufficiently capacious to take steamers of the class of *Manchuria* or *Korea*, but it is not yet certain whether this will prove practicable. It has been decided, however, that the dock shall in any case be the largest in Japan, with the exception of the one belonging to the Mitsu Bishi at Nagasaki, which could take a vessel of upwards of 30,000 tons. The present intention is that the construction of the dock shall be commenced at Nagasaki shortly, and that it shall be completed and taken to Kobé by the spring of 1908. The existing floating dock at this port, which also belongs to the Mitsu Bishi, will not take vessels of more than 7,000 tons.

BRIDGES

AYALA BRIDGE, MANILA.—The Atlantic, Gulf and Pacific Company, of New York and Manila, has been granted an extension of time for 7 mos. in which to complete the reconstruction of the Ayala Bridge over the Pasig River.

SUSPENSION BRIDGE, MANILA.—City Engineer Dieck has recommended to the Municipal Board of Manila that the Suspension Bridge over the Pasig River be ordered entirely reconstructed or removed altogether. This bridge is private property.

MINES AND MINING

MINING INDUSTRY, KOREA.—The Korean Imperial Household Department has decided to work on its own account the different mines belonging to the department.

STOCKS OF COAL, WAKAMATSU, JAPAN.—At last report the stock of coal at Wakamatsu amounted to 250,000 tons and those at the collieries totalled 300,000 tons. These are the largest figures on record, and quotations of coal are therefore falling off.

TAKASHIMA COLLIERY DISASTER, JAPAN.—An explosion of fire-damp has done great damage to the Takashima coal mine, the property of the Mitsu Bishi Company, killing 307 persons, mostly miners. The walls separating one shaft from another were nearly totally destroyed by the explosion.

TIN EXPORTS, STRAITS SETTLEMENTS.—The total exports of tin from the Straits Settlements during 1905 amounted to 56,845 tons as compared with 57,560 tons in 1904. Of this total 31,488 tons were taken by the United Kingdom, 16,844 by the United States, and 8,512 tons by the continent in 1905.

FUCHUN COLLIERY, MANCHURIA.—Recent investigations show that the extent of the coal seam of the Fuchun Colliery, near Mukden, is 5 ms. in length, 144′ in thickness, and about 1 m. in width. The total deposit of coal is estimated at about 250,000,000 tons. The daily output of coal at present is 2,000 tons.

BRITISH CONCESSIONS IN CHINA.—The British minister at Peking, Sir Ernest Satow, has repeatedly protested to the Waiwupu against the cancellation of mining concessions in the different provinces, which have been granted to British merchants. Lately he has revived his protests with vigor, but the Waiwupu has replied that unless a preliminary agreement has been ratified, it is not a valid document.

COAL IN MANCHURIA.—The coal mines in Manchuria are described by the Belgian consul at Tientsin. The Russians did not achieve success on the mines they opened at Yentai, and abandoned them in favor of the mines at Fuchun, E. of Mukden, on the Hung-Ho, which have been taken over by the Japanese and which Mr. Tanaka, director of the Bureau of Mines at Tokyo, states are very rich in coal. Their value has been estimated at $150,000,000 to $250,000,000 gold.

BRITISH AND KOREAN CORPORATION.—The last annual report of the British and Korean Corporation shows that the value of bullion obtained was £77,901 the result being a profit of £6,016. A new concession has been offered to the corporation on favorable terms in exchange for the Gwendo-line Concession and subject to the same conditions. Fresh capital will be required to develop the concession, and to that end it will probably be necessary to reconstruct the company.

Volume III

June 1906

Ching-Hai Railway, the Chinese Government was inspecting the line.

Kowloon-Hong Kong Railway, Peking had rejected an article in the agreement that the chief engineer would be appointed by and controlled from Hong Kong.

Railway Development in Shantung Province, the original concession granted to the Germans for the Chinanfu-Chingting section had been redeemed. Preparations for the railway were on-going.

Peking-Kalgan Railway, work on this line was progressing well under the charge of Jeme Tien-yu. The line was now expected to be complete by the end of 1907 instead of 1908. No foreigners were employed on the line.

Another Chinese Railway Project, the Governor of Honan had suggested railways from Loyang to Tungquan and Kaifeng to Chinan be constructed. The was the usual problem of finding funds.

July 1906

Japan's Railway Problems in Manchuria, this article discusses the financial problems experienced on her railway in Manchuria. The question of whether to regauge the railway from 3' 6" to standard gauge would have to be decided. This would require an investment of at least £1000,000 for new rolling stock to replace that borrowed from Japan. The Russians before leaving had also ripped up over 50 miles of track and steelwork before retreating and this would all have to be replaced at a cost of up to half a million £. Repair of stations and other buildings would need a similar amount and so too would the improvements needed in Dalny. Production of coal from the Fushun mines was expected to increase and this would be exported through Dalny. Time would tell if the Japanese were willing to risk the large investments needed.

Swatow Chao-Chou-Fu Railway, the development of this line had not been as fast as first predicted because of problems acquiring land for the line. There had been protests from villagers and landowners and two Japanese workers had been killed in early 1905 during a riot. A compromise seems to have been reached over land purchases and work was now continuing, all material having been supplied by the Japanese contractors.

Peking-Kalgan Railway, a repeat of the June 1906 report.

Kiangsu Railway Co. the company was formally formed on 10th June at a meeting in Shanghai. The company is to build railways throughout Kiangsu.

Soochow-Ningpo Railway, the British Charge d'Affaires was still working to get this concession for the British and Chinese Corporation who wish to connect it with the Shanghai-Nanking Railway.

Fukien Railways, two French engineers had been engaged to survey for this railway. Japan had objected because of an agreement that Fukien would not be ceded to other countries and this arbitary engagement of French had ignored Japan's rights.

Tenghyueh, Yunnan Line, Chinese had now objected to the building of the British Burma to Yunnan line.

Shantung Railway, traffic on this line is developing and revenues increasing enabling an increase in dividend.

Fat-Shan Railway, the section of line from Fatshan to Canton has deteriorated from bad to worse since it was handed back by the Ameriacns to the Chinese. Some of the bamboo huts serving as stations had become gambling and opium divans.

Manchurian Railway, 64 miles of the Chinese Eastern Railway from Changtu to Kungchulin had been delivered to the Japanese Commission on 1st June.

August 1906

Railway Construction in China, an article comparing the scarce railway systems of China with those of continental N. America. Things were about to change however and soon remote parts of China which could take months to reach would soon be accessible in hours. The article refers to a few of the lines currently under construction including the "narrow gauge" (metre) Chengting-Taiyuan line about to be finished by the French.

Canton-Hankow Railway, the shareholders had held a meeting in Canton to discuss financial matters and decide on how profits would be divided. The company was also going to request the services of Jeme Tien-You to act as Chief Engineer. 1 small photo of the terminus on the West River.

Yunnan Railway, a report from J Neumann, Imperial Collector of Customs at Mangtsz that the railway's construction was contributing an important element to the district's prosperity. Neumann gives a brief history of the background to the railway's development. He includes a sketchmap showing the route which had been modified, a gradient profile chart and describes the difficult conditions and engineering problems not least of which was the need for some 100 tunnels. The line had been divided into sections and given to mainly Italian contractors. It was hoped that the line to Mengtsz would be ready by spring and the rest of the line the following year.

Formosa Government Railway, with the exception of 9 miles the line from Keelung to Takow in the south was complete. The journey from the capital Taihoku and Tainan, the largest city in the south, could be made in 14 hours. A new foreign hotel was being planned for the capital to attract overseas travellers. Japanese company Okura & Co. had secured the contracts for most of the bridges with the materials coming from USA. Includes a small map of Formosa showing the railway's route.

Shantung Railway, a list of traffic statistics for the year 1904 and 1905.

September 1906

Shanghai-Nanking Railway, this impressive railway had now opened the second section between Shanghai and Wu Sieh with splendid trains running between the two places. Although a nominally British-Chinese concession in reality British interests had almost exclusive control. Prospects were good for the entire line to be open within a year. The very able Mr Collinson, Engineer-in-Chief ensured that construction standards were equal to anywhere in the world.

Shanghai-Soochow-Wusieh Section of the Shanghai-Nanking Railway, a detailed report about the construction of this section of the railway. The engineering features are described with a route map and 5 photographs of bridge construction scenes. The rolling stock is also described including brief specifications of the Robert Stephenson & Co 4-wheel coupled passenger locomotives. Fares were described as moderate, being 1cent per mile for 3rd class, 1½cts 2nd class & 3 cnts for 1st class.

A full page photo of the official opening with railway officials & guests posing in front of a decorated Stephenson locomotive at Shanghai station. A description of stations which were an average 6 miles apart and built in "English" fashion with the platforms at the side of the tracks. Shanghai station was described as awkwardly situated a considerable distance from the Settlement. This was also the terminus for the Woosung line. A locomotive roundhouse and freight depot were also under construction not far from the station. The article concludes with a list of engineering staff.

The Kaiping Enterprises Primarily about Chinese Engineering and Mining Co.'s mining industries at Tongshan (Tangshan), this article contains many refrences to the railway serving this centre of industry.
Chinese Railways. A short report by the American consult at Amoy (Xiamen) about plans for the Fukien railway.
South Manchurian Line, A consular report from Dalny (Dalian) discussing Japanese funding of the SMR.
Guet-Han Railway (Yueh-Han) An appeal for qualified and experienced Chinese civil engineers to apply for work building the Kwant-tung section of this line.
Yuet-Han Railway (Yueh- Han) tenders invited for supplying rolling stock.

October 1906
Construction of the Peking-and Hankow Railway by the Franco-Belgian Syndicate, a five-page well-illustrated report about the construction of the line. Describes the history and politics of the line and details of the contract and financing. The construction is described with detail of the huge Yellow River steel bridge. 11 photographs of construction scenes including the Yellow River bridge.
Mukden-Sinmintun Railway, the line was opened to traffic.
Canton-Hankow Railway, Taotai Kwang Sing Chi had been appointed Manager of Works for the line.
Restoration of the Tientsin Railway, Negotiations for the restoration of the Tientsin Railway to China had commenced.
Canton-Whampoa Railway, the British Minister to Peking had demanded Peking to instruct the Viceroy of the Two Kuangs to suspend work on the Canton-Amoy railway. No reasons were given.
Kowloon-Canton Railway, a severe outbreak of Malaria had hit coolies working on the cutting and tunnel near Shatin.
Canton-Amoy Railway, Viceroy Sum was reported to be giving military protection to all construction camps associated with this railway and work would begin sooner than expected.
Railways in China Short statement reporting "great development" of railways taking place in the country.
South Manchurian Railway, the cost of all the improvements required to this railway would require ¥100,000,000 to be raised.
Manchurian Railways, reconstruction of the line between Changtu and Shwang-miao-tsz had been completed. The sections north of the latter to be opened end of October. The section to Kunchulin, which was in ruin when received by Japan is progressing well and the whole line to Changchun would be ready mid November.
Mechanical Supplies for China's Railways, Imperial Railways spend $1.500,000 a year on purchasing foreign mechanical supplies etc.
Railway from China to India, Indian sources suggested a railway connection the two countries was most important for trade. Trade had to be suspended 4 months each year because of rains causing a block to the opium trade and other British goods for China.
South Manchurian Railway Receipts Daily receipts & numbers employed.

November 1906
Hangchow Railway, the route had been fixed and would run from Kiang-kan along the eastern side of the Grand Canal to Hunchchinkiao via Konshanmen.
Shantung Railway, the line did prosperous business during 1905 with 30,000 tons of freight and 795,000 passengers carried.

Railway Building in China, railway work in the Namti valley was very destructive to human life with the death rate being as high as 70%.
Peking-Kalgan Railway, the Fengtai-Nankow section had been opened to traffic. The ties (sleepers) used were from Japan and America but the locomotives from England. ¾ of the line was still under construction.
Canton-Sam-Shui Railway, reported to be in such a dilapidated state, due to neglect of maintenance by the Chinese, that expenditure of $1,060,000 is needed to restore the line.
Mukden to Antung by Rail, The London and China Express reports on a trip down the "miniature military light railway" which is to be upgraded to a permanent railway.
Honan-Ningpo Railway Report that the railway had decided to raise a local loan to repay a British & Chinese Corp. loan.

December 1906
Yunnan Railway, work is progressing in spite of the Namti valley difficulties. Loss of life among the labourers is being reduced through health measures.
Chekiang Railway, Chinese engineers had begun a survey of the line between Hangchow and Chiahsing under Engineer-in-Chief Chang K'eh-ming.
Canton Railway, The Canton (to Hankow) Railway Administration had intended to employ an American engineer recommended by the Chinese Minister in Washington but the majority of shareholders objected to any more foreigners being employed. The employment offer was to be cancelled.
South Manchurian Railway's Northern Terminus, Japanese officials had been appointed to a commission to settle the question over the site of the railway's northern terminus. There was a dispute with the Russians as to whether Changchun station should be regarded as part of the Japanese part of the line.
Swatow-Chowchowfu Railway, the 28 mile railway had been formally opened to traffic. The Swatow end, however, was not fully completed owing to the need for a bridge to the wharves. This railway was the first to be constructed by Chinese under the direction of Japanese engineers. It was intended for the line to be linked with the Canton-Hankow Railway.
Kowloon-Canton Railway, details of a new loan agreement for this line (Chinese Section). The headquarters were to be in Canton. A British engineer-in-chief and a British manager would be appointed. The Viceroy would arrange separate terms for the joining of the Canton section with the (British) Kowloon section.

January 1907
Railway Building In China A short discussion about the dangers from disease during the construction of railways in tropicals climates, notably the Yunnan railway.
British and Chinese Corporation A report that at the Annual General Meeting in London, about the performance of the company's railway loans to China.
Kiangshuh Railway, the first section of the Kiangkan-Hushuh had been opened.
New Manchurian Railway, the Peking Government was negotiating a French loan for building a new railway along the Sungari River between Samsin and Kweihuacheng using Japanese engineers.
Wuhu-Kuangtechow Railway, the Governor of Anhui reported commencing the construction of this railway with a bridge over the Wuhu River under the

supervision of a Danish engineer assisted by some foreign educated railway students. The railway is being built with Chinese money.
Railway Car for Empress Dowager, the new parlour car for the Empress Dowager & Court officials, ordered from France, had been shipped to Peking. The car was divided into 6 compartments.
Railway Bridge Across Yalu River, the Japanese had decided to build the bridge to permit through services between Fusan and Mukden. Expected completion in late 1909.
Canton-Kowloon Railway, an agreement was now reported as having been concluded for the construction of the line on the Chinese section, having been delayed by obstructive Chinese officials, who had now given way under pressure from the Viceroy.
Imperial Chinese Railways Sterling Loan A report that coupons on this loan werte being paid by HSBC at the London HQ.

February 1907
Anhui Railway, a report on the progress of surveying the line from Wuhu to Kuangtechow. Lord Li Ching-fang was the Director-General of the railway. Foreign surveyors had met no obstructions from the native population who seemed pleased to have the railway built knowing it would bring prosperity.
Railways in Manchuria, the British Commissioner of Customs in charge of establishing customs houses at Mukden and Antunghsien had recommended the immediate extension of the Imperial Railways of North China line from Hsinminfu to Fakumen, a distance of 55 miles.
Kiangsi Railway, a Belgian syndicate had negotiated a loan for construction of the line between Kiukiang and Nanchang.
Kowloon-Canton Railway, the agreement had been signed and construction was expected to start.
Kirin-Changchun Railway, the Russians were trying to compete with this railway by dredging the River Sungari.
Railway Opium Traffic, the British Minister was conducting negotiations with the Chinese Government about importing opium on the Tientsin-Chinkiang Railway and across the Burma-China Railway.
South Manchurian Railway, officials of this company were negotiating with the military authorities for the transfer of the line in March. In April work would start on widening the gauge.
Urga-Sungari Railway, the Chinese Government had decided to construct this railway with proceeds from the Peking-Hankow and Peking-Tientsin railways.
Shanghai-Kashing Railway, work on this railway had started from outside the Great South Gate of Shanghai native city. The Kiangsu Company would construct this line to Fengchingchen on the Kiangsu/Chekiang border. From the latter the Chekiang Provincial Railway Co. would operate the line on to Kashing and thence Hangchow.
Canton-Hankow Railway, the American Consul at Victoria B.C. reported that Canadian and American Chinese had raised $50,000,000 for the construction of this line under principal promoter Charlie Yip Yen.
Chinese Railway Loans, a report on the various loans raised for railway building in China.
Swatow Railway, the official report confirms that the line is too poorly constructed for the heavy rains the territory experiences. In some places the sleepers float in a bed of sand. Japanese are employed managing the line but some Chinese had been sent to Formosa to learn railway business.

Railway in Szechuan, China had given consent to the construction of a line in Szechuan to open up trade in the province. The French also hoped to connect the Yunnan Railway with Chingtu.
Yueh-Han Railway, a warning had been promulgated warning merchants supplying materials to the railway not to inflate invoices or pay commissions to employees.
South Manchurian Railway A report about the legal organization of the SMR company as authorized by the Japanese government.
Arnold, Karberg & Co, advertisement for railway equipment. The company had agencies in many Chinese cities.

March 1907
Canton-Hankow Railway - A Chinese Puzzle A North China News editorial comment about the the political intricacies and mysteries concerning the building of this railway
Kiangsu Provincial Railway, the first section from Shanghai to Hsiakow had been inaugurated and construction was expected to proceed.
Kiangsi Railway, a contract for the Belgian loan for the Nanchang-Kiukiang line had been sent for approval by the Government.
Kaifengfu-Loyang Railway, this railway is divided into two parts: Chengchow to Kaifengfu and Chengchowfu to Loyangfu.
Canton-Amoy Line, the survey was in progress.
Fukien Province Railways, money was being raised for this railway in the Straits Settlements and Malaya.
Szechuan-Hankow Railway, the British and Chinese Corp. had offered to fund this railway but as usual the gentry and students were opposing it.
Railway Construction in China, a press opinion that few of China's planned railway schemes will come to anything without foreign loans. A loan was currently being negotiated for the Kiukiang-Nanchang line.
Yuet-Han Railway, the president and vice-president of this railway company had been denounced to the Throne for conspiracy and corruption and for jeopardizing the success of the railway.
Yuet-Han Railway, a report that the Viceroy had been requested to travel to Canton to save the railway from collapse.
Peking-Hankow Railway, there were insufficient freight cars for the huge amount of traffic especially from Honan province. Excellent coal had been found at Liu-Cheng Hsien near the Ching-Huan Railway and a new line to link with this railway at Chengchou was being constructed.
South Manchurian Railway, a list of new directorate appointments and report on a new issue of shares.
Chinese Railway Directors, the Chinese Government had announced administrative changes to the railway directorate.
Kowloon-Canton Railway, on the British (Hong Kong) section work was being pushed ahead as rapidly as possible in the New Territory.
Imperial Chinese Railway Bonds, the H.K. & Shanghai Bank was raising a new loan and issuing £100 bonds.

April 1907
Shantung Railways, the Governor of Shantung had approved an application for the Kiaochow-Chinanfu Railway Co. to build a railway from Yih Hsien to Tien Chwang-ho as a branch of the main line.
Chengling-Taiyuanfu Railway, the Chinese Government was considering buying back this line, built partly with Russian capital.
Redemption of the Peking-Hankow Railway, a meeting on redemption had been held and the question of management decided upon.

Proposed Yangchow Railway, a group of wealthy merchants wished to construct a railway from Icheng to Taschow.
Anam-Yunnan Railway, the French Minister at Peking had requested the Chinese Government to provide protection against tribes at Mangu in Yunnan province who had repeatedly obstructed the railway construction.
Shanghai-Nanking Railway, the line between Wusieh and Changchow was expected to open to traffic in May, 10,000 tons of rails had been ordered from the Hanyang steelworks.
Heilungchiang Railways, 2000,000 Taels had been raised by local gentry for the building of the Tsitsihar-Aigun railway. The first section as far as An-chang had been surveyed.
Kirin-Changchun Railway, the Governor of Kirin had objected to a proposal that the line be built jointly with Russian, Japanese and Chinese capital. The Chinese wished to build it themselves.
Mongolian Railway, the Chinese Government had not yet agreed on the line from Kalgan to Kulun being built.
Canton-Hankow Railway, shareholders and local Cantonese gentry continued to wrangle over the railway with affairs at a deadlock.
Canton-Kowloon Railway, a share issue arrangement had been decided upon.
Chinese Eager to Build Railways, the peoples of Kangsi and Yunnan appeared eager to build their own railways and not allow them to fall into foreign hands. They had requested help from Canton.

May 1907
South Manchurian Railway, debenchures worth £80,000 would be placed on the New York market
Kaifeng-Chenchou Railway, traffic on this section was inaugurated 16 April.
KaifengfuLokyangRailway, the Chinese Foreign office were arranging a Belgian loan for this railway.
Kirin- Changchun Railway, a lot had been selected for the railway station.
King-Chang Railway, Peking was trying to float a loan for this railway and to build an arsenal.
Ningpo-Hangchow Railway, French capitalists had applied to build and operate this railway.
Tsitsihar-Aigun Railway, sleepers were being purchased for the new line, which had been surveyed.
Kirin-Changchun Railway, the military governor of Kirin had refused Japanese and Russian offers to provide capital for this line.
Shantung Railway, the governor of Shantung had granted a concession to the Germans to construct a line from Yihsien to the Tienchuang River.
Kueichua-Kalgan Railway, the management had decided to proceed with construction
Amur Railway Bridge, a site had been decided upon for the bridge and construction begun.
Manchurian Railway –Double Tracks, a survey had begun for double tracking the southern section.
Kirin-Changchun Railway, money had been subscribed for building this railway, half, it was stated, had come from the Russians.
Kiachow-Chinanfu Railway, the Shantung governor had granted a franchise for a branch from Yihsien to Tienchwangho.
Yihsien and Grand Canal Railway, the salt taotai Chang Lien-fu had been granted a concession for this standard gauge railway.
Yunnan-Tibet Railway, Peking had directed that this railway should be pushed immediately but that the contract should not go to foreigners.

Peking-Kalgan Railway, Hongkong and Shanghai Bank had agreed to use profits of Peking-Shanhaikwan Railway for the Peking-Kalgan railway but the government opposed this.
Manchurian Railway Agreement, April 14 an agreement for Kirin-Changchun was signed and also for the purchase of the Hsinmintun-Mukden line.
Chefoo-Peking Railway, the merchants of Chefoo had proposed this railway but Tientsin interests opposed it.
Canton-Hankow Railway, the railway had ordered 54 freight cars from Japan at a cost of $216,700 but discovered later the order didn't include axles or wheels.
Mukden-Hsinmintun Railway, Viceroy Yuen Shi Kai had recommended to the Throne that profits of railways within and without the Great Wall should be used for this proposed railway.
Szechuan-Tibet and Yunnan-Szechuan Railways, local Chinese landowners intended to forestall the British by building the Szechuan-Tibet railway with Chinese capital.
Chihli-Shantung Railway, the Viceroys of the two provinces had been communicating about building a railway between the two provinces.
Tientsin-Chinkiang Railway, Peking was expected to consider favourably a joint Anglo-German application for building this line.
Chinese Trunk Lines, the department of Communications had recommended the construction of extensive trunk lines throughout China. The Empress Dowager had called for a map to be submitted showing the proposals.
Yihsien-Tienchuang Railway, the Chinese –German Coal Mining Company is surveying the line which will be built for an estimated 900,000 Taels. An order for material had been placed with a German company.
Kowloon-Canton Railway Loan, subscriptions were being invited in London for a loan to Chinese Imperial Railways for building this line.
Yunnan Railway, construction progress was slow owing to scarcity of labour.
Shanghai-Nanking Railway, new passenger coaches had entered service and the fare halved. The American check system had been introduced for the baggage department with 4 pieces of baggage allowed per passenger.
Manchurian Railway Junction, the junction of the Russian and Japanese lines was to be sited at Palipao on the Changchun-Kirin High Road.
American Locomotives Sold Abroad, the American Locomotive Company had received orders for: 2 eight-wheeled passenger engines for the Canton-Hankow Railway & 3 Prairie-type tank locomotives for the Yueh-Han Railway.
Kirin-Heilungkiang Railway, the Russians had filed a protest about this proposed railway, claiming they had a right to participate jointly with the Chinese in any railways in that district and that the railway would conflict with the interests of the Chinese Eastern Railway.
Manchuria Railway Development, the price for the Chinese to purchase the Hsinmintun-Kirin Railway was quoted as being ¥1,660,000. Half the capital for this line and also the Changchun-Kirin line would be borrowed from the South Manchurian Railway Co. The chief engineers and accountants were to be Japanese.
Kowloon-Canton Railway, work was progressing well (British Section).
Tsitsihar-Aigun Railway, planning and financing was well advanced for this railway, which was to be built with local capital. Orders for the rails had been placed with the Hanyang Steel and Iron Works of Hankow.
Railway Bank for Szechuan, the Viceroy had recommended setting up a special bank to oversee the financial affairs of this railway company.
Railway Equipment, the South Manchurian Railway Co. had decided to adopt the American system and place large orders for railway equipment in USA as

an expression of appreciation for America's friendly attitude towards Japan. This would include 150 locomotives, rolling stock and other supplies.

FAR EASTERN ENGINEERING, CONSTRUCTION, COMMERCIAL AND FINANCIAL NEWS

PERSONAL

MR. DAVID J. LENNOX, a prominent engineer of Hongkong, has resigned the secretaryship and management of The Institution of Engineers and Shipbuilders of Hongkong and accepted the position of superintendent of the Peak Tramway. Mr. Lennox is very popular in engineering circles of the colony, and his long experience in the profession gives assurance that he will conduct the affairs of the Peak Tramway with ability and success.

RAILWAYS AND RAILWAY SUPPLIES

CHING-HAI RAILWAY, CHINA.—The board of commerce at Peking has sent four secretaries to inspect the Ching-Hai Railway.

KOWLOON-CANTON RAILWAY.—The Peking authorities have rejected the 4th article of the agreement of the Kowloon-Canton Railway, in which it is stipulated that the chief engineer should be recommended and controlled by the Government of Hongkong.

RAILWAY EXTENSION, F. M. S.—A corps of assistant engineers is being engaged to select and survey the route of the proposed extension of the Federated Malay States Railway to Johore and thus establish a rail connection between Penang (Butterick?) and Singapore.

SIAM WANTS RAILWAY SUPPLIES.—The Government of Siam has issued specifications and drawings of tenders for the supply of 67 passenger cars, 7 guard and luggage vans, and 265 goods and ballast cars for the Royal Siamese Railway Department. Sealed tenders will be opened at Bangkok on September 4th, 1906.

RAILWAY DEVELOPMENT IN SHANTUNG PROVINCE, CHINA.—The governor of Shantung has notified Peking that the concession originally granted to Germans for the building of a railway from Chinanfu to Chingting (on the Peking-Hankow road) has been redeemed, and preparations for the construction of the railway and the opening of steam traffic are progressing.

BRITISH LOCOMOTIVES FOR THE PHILIPPINES.—An important contract for supplying eight powerful 6-wheeled coupled bogie freight locomotives for the Manila Railway Company, Ltd., has, in the face of severe continental competition, been awarded to Messrs. Kerr, Stuart & Co., Ltd., of the Californian Works, Stoke-on-Trent. Early delivery was an important feature in the placing of the contract with British engineers, and the locomotives are shortly to be shipped to Manila.

PEKING-KALGAN RAILWAY.—Work on this line is progressing very rapidly under the charge of Taotai Chan, commonly known as Jeme Tienyao, an American-educated civil engineer, and it is expected that the whole line will be completed before the close of the year 1907 instead of 1908, as at first contemplated. Viceroy Yuan Shih-kai wishes it finished and opened to traffic as soon as possible with the view of having the line extended to the Mongolian capital of Urga and beyond as far as the Siberian frontier. All the railway materials ordered from France have arrived at Tientsin and have been delivered to the railway administration. No foreigners are employed on this line.

TRANSKOREAN RAILWAY.—At a recent conference of the Korean chambers of commerce it was decided to urge upon the authorities the desirability of connecting the southern and northern districts of Korea by the construction of a line to complete a Transkorean Railway. There is still a difference of opinion as to whether the line should run from Pingyan to Gensan or from Seoul to Gensan. The former would be a line about 100 ms. long, and the latter about 103 ms. The Pingyang-Gensan line would present difficulties owing to the precipitous heights at Ma Sin-lyong, but a similar obstacle would be found at Thyol-lyong in the case of the Seoul-Gensan line. There is, consequently, not much choice between routes.

ANOTHER CHINESE RAILWAY PROJECT.—The governor of Honan has asked the Peking Government for the construction of a railway line from Loyang to Tungquan on the borders of Shensi, and from Kaifeng to Chinan. He urges that both of these lines are of the utmost importance considering the central position held by Honan, which is in touch with seven provinces. The usual difficulty of funds, however, presents itself, and the length and difficulty of the latter line render its immediate undertaking almost out of the question. In regard to the Loyang-Tungquan line it is different, however, and though it is estimated to cost something like Tls. 5,000,000 for the 480 *li*, unless it is undertaken the new line from Hsian to Tungkuan which is to be built with the idea of linking up with the Chinghan line can not be connected. The proper Peking authorities have been directed to consider the matter and see what can be done.

ELECTRIC LIGHTING, TRACTION, POWER, ETC.

BENGAL TELEPHONE COMPANY.—This company has started on a big scheme of changing all its overhead wires in Calcutta to underground, involving the laying of 50 ms. of cable.

ELECTRIC LIGHT AT TIENTSIN.—The electric tramway and lighting company of Tientsin, North China, has put its lighting plant in operation and now the city is enjoying this modern convenience.

NEW ROLLING STOCK, MANILA STREET RAILWAY.—The Manila Electric Railroad and Light Company is adding 14 fine cars to its equipment of rolling stock. Four of the cars are half box and half open, the first-class compartment being closed for protection during the wet weather, and the seats extend lengthwise of the car.

ELECTRIC LIGHTS AND POWER, SINGAPORE.—The proposal of the Singapore Electric Tramways, Ltd., to supply the Municipal Commission with electric energy for lighting and fans at the rate of 12½ cts. per board of trade unit, and to supply energy for prime movers with which is classed energy for arc lamps for the public lighting of streets, at 12½ cts. less a discount of 25 per cent per board of trade unit, and that the charge by the Municipal Commission to the public be fixed at 25 cts. per board of trade unit for electric energy for lighting and fans, and for energy for prime movers at 25 cts., less a discount of 25 per cent per board of trade unit, has been accepted by the commissioners.

CHINA ADOPTS WIRELESS TELEGRAPHY.—The American consul-general at Tientsin reports that the Chinese Government has arranged to establish several stations throughout China for experiment with the Marconi system of wireless telegraphy and instruct Chinese operators in working the same. Apparatus was recently installed on four Chinese men-of-war at Shanghai and at the three North China cities of Tientsin, Peking, and Paotingfu, the radius of action being about 230 kilometers and the cost about Tls. 25,000. An Italian officer has been appointed, not only as instructor, but also as engineer to superintend the installation, and under whom a number of students have already been detailed to act as operators and learn the art of management. It is also said that the viceroys throughout the empire have been directed to consider the advisability of establishing other stations to work in conjunction with those above mentioned.

AMERICANIZED MONGOLIANS.—Mr. Lim Dat, a successful Chinese merchant of Victoria, British Columbia, has organized among his countrymen located there a $2,000,000 (gold) company to construct an electric trolley railway in China from Canton to San Wu, in China, a distance of 60 ms. No white man need apply for stock, as their presence in the company would forfeit the charter from the Chinese Government. The route of the proposed line is a populous one, Canton having a population of at least 2,000,000 and San Wu 500,000. The prospectus of the new company sets forth that there are no serious topographical difficulties to be encountered in building the line, that water-power will be obtained from the Qual Tong Shun Mountains, 30 ms. from San Wu; that there are now 22 junks plying on the river between these points, carrying heavy cargoes and many passengers; that it takes these junks 14 hrs. to make the trip, which the electric cars will make in 3 hrs. It is also stated that the summer cars will be operated—the climate being warm—and each will be equipped with 50-h. p. motors. The plan is to build the line entirely with Chinese labor, even using Chinese electricians as far as possible. The company also proposes to seek from the City of Canton a concession for light and power privileges.

PUBLIC WORKS

AYALA BRIDGE, MANILA.—The Atlantic, Gulf and Pacific Company hopes to have the reconstruction of the Ayala Bridge over the Pasig River finished by August 13th.

WATER AND SEWER SYSTEMS, PARANG AND JOLO, P. I.—Henry M. Jones, of Manila, has secured the contract for furnishing the labor and materials for the construction of water and sewer systems at Parang and Jolo. His bid for the Parang works was ₱42,223 and for the Jolo works ₱32,378. He agrees to complete his contracts within 300 days after commencement.

ROAD-MAKING IN KOREA.—With reference to a recent statement that a part of the new Japanese loan to Korea will be used for the construction of new roads, the Korean Government has made arrangements to engage four Japanese engineers and eight assistants for this purpose. The survey for the new roads will be carried out between July and November, and the work of construction is to begin next spring.

EXTENSION OF CONTRACT TIME DENIED, MANILA.—Mr. J. F. Case, chief engineer of the Department of Sewer and Waterworks Construction, Manila, has recommended the denial of the application of Messrs. Matson, Lord & Belser, contractors for the construction of the dam and reservoir of the new gravity water supply, for an extension of time for the completion of their work, and the Municipal Board has approved the recommendation. The contractors have been notified by cable of this decision.

IMPERIAL LIBRARY, TOKYO.—The new building of the Imperial Library at Uyeno Park, Tokyo, has been officially opened. It is three stories high and is constructed with all up to date materials. The completed building does not comprise the whole library design. It is only a quarter of the proposed premises and the remaining three-quarters will be built adjacent to the present building. The cost is -Y-320,000. The new building is the largest library in the Orient, containing about 300,000 books.

PUBLIC WORKS IN MINDANAO, MORO PROVINCE, P. I.—The new fiscal year will mark great activity in the public works of the Moro Province. Besides the projects to be undertaken by the civil government, the chief quartermaster, Department of Mindanao, will spend about -P-250,000 in permanent improvements at the several garrisons of the military. Besides the sewer and water systems at Parang and Jolo, the military will build a dock for the garrison at Cotabato, and a Telford road, cement sidewalks and curbing, and a seawall at Zamboanga. All of the military work will be let by contract.

A BANGKOK BRIDGE.—The bridge near the post and telegraph department in the city, says the *Malay Mail*, which was closed for traffic a year ago, and then apparently forgotten, is still closed though the long-deferred work of repair has been going on for some time Now the passage of the tram cars over it is stopped, too, and the passengers have to get out one side and walk, like hens along a rail, across narrow girders about 4 ins. wide at imminent risk of their necks, to a waiting car on the other side. Judging from the rate of progression now observed, it will be some time yet before it is opened to traffic. There were three men and a boy looking at it this morning. One of the men was working hard chewing betel, and the boy was minding some tools which were ostensibly there for some purpose connected with the bridge.

DEPARTMENT OF ENGINEERING AND PUBLIC WORKS, MANILA.—In 1904 the expenses of this department were -P-2,585,979.15, of which salaries and wages consumed -P-912,580.12, the remaining -P-1,946,399 03 being for contingent expenses and public works. The expenses of the department for the fiscal year 1905-06 amounted to -P-2,682,828.87, a saving of -P-176,150.28 on the total expenditure. Of this total amount the sum of -P-1,026,491.99 was expended for salaries and wages, showing an increase of -P-113,911.87, while the contingent expenses and public works caused an expenditure of -P-1,656,336.88, or a saving of -P-290,062.15. In his estimate for the new fiscal year the city engineer asked the Municipal Board for -P-498,409.97 for salaries and wages, and -P 1,379,096.23 for contingent expenses. The board has reduced this estimate -P-804,776.67 less than last fiscal year and about -P-1,000,000 less than the expenses of the previous year.

PORT WORKS, DOCKS, ETC.

WHARF AT PARANG, P. I.—Salvador Farre, Manila, has secured the contract for the construction of a wharf at Parang, his bid being ₱35,500. He agrees to complete the work within 300 days after its commencement.

NEW DOCK NEAR MOJI, JAPAN.—The scheme promoted jointly by Japanese, Belgians, and Englishmen to construct a large dock at Tanoura, near Moji, has matured, and the work of construction has commenced. The dock will be capable of accommodating vessels up to 20,000 tons.

SINGAPORE HARBOR WORKS.—Mr. Winston Churchill recently said that the Singapore Chamber of Commerce had made representations against the construction of the proposed harbor works there, but Lord Elgin was not satisfied that the representations embodied the wishes of the trading community, and saw no reason further to delay work which was undertaken on the authority of high experts and after prolonged consideration both in London and Singapore.

KAWASAKI DOCKYARD COMPANY at SHANGHAI.—In explanation of the decision of the Kawasaki Dockyard Company to establish a branch dockyard at Shanghai, it is pointed out that a rapid development of Japanese shipping on the China Coast and the Yangtsze is in progress. The Japanese Guardianship Squadron has also to be taken into consideration, while there is a prospect that the Kawasaki company, which has already successfully built a number of naval vessels for the Chinese authorities, will receive a good many such orders in future.

MINES AND MINING

TIN FROM STRAITS SETTLEMENTS.—The total shipments of tin from the Straits Settlements for 1905 amounted to 63,710 tons, 18,905 tons going direct to the United States, 35,294 tons to England, and 9,511 tons to Continental Europe.

MINES IN AMUR.—The Tartar general of Heilungkiang has received a report from an under official to the effect that the mines along the Amur River have been occupied by the Russians. Efforts are being made to drive out the Russians.

GOLD-DUST GATHERING MACHINE.—Mr. Naosaburo Minorigawa, a Japanese inventor of filature and drying machines, has made another invention in the shape of a gold-dust drying machine, by means of which the quality of sands containing gold-dust can easily be ascertained.

FOREIGN MINING ENTERPRISE IN YUNNAN.—The viceroy of Yunnan reports to the Peking authorities that a number of British and French merchants, styling themselves the Hsing Lung Company, are mining cinnabar in the Chohung Prefecture of Yunnan, and declaring they are doing so in accordance with the treaty. Negotiations have been commenced looking to a solution of what has turned out to be a controversy.

ration. They shall also be authorized to demand at any time at their discretion a written statement of accounts or of the business of the Corporation; and further to attend and state their views at general meetings of shareholders and other meetings. They will not, however, be empowered to vote at meetings.

Article XIII.—The Government will issue such orders as may be deemed necessary for the control of the Corporation and its business.

Article XIV.—If the Corporation by a vote, or the officials act in violation of the laws or orders of the Government or the objects of the Corporation, or if the Corporation fails to carry out the orders of the authorities supervising the business, the Government will abrogate such vote and may dismiss the officials culpable.

Article XV.—The Government may apply when deemed necessary the laws and ordinances relating to railways in the Empire to the business of the Corporation. Due notice will be given the Corporation of the laws or ordinances to be applied.

Article XVI.—The commercial code and laws and ordinances appertaining thereto shall be applied to the Corporation, in cases where provision is not made in the present ordinance.

Article XVII.—Imperial Ordinance No. 366 (relating to Japanese companies constructing railways abroad) will not be applied to the Corporation.

Supplementary rules have been issued to the foregoing ordinance by which the Government will appoint a committee for the conduct of affairs relating to the formation of the South Manchuria Railway Company, Ltd. The promoting committee shall issue the first shares after drawing up the Articles of Association and obtaining the approval of the Government thereto. After the issue of the first lot of shares the promoting committee shall apply to the Government for a charter, producing the applications for allotment. The committee shall make the first call on the shares without loss of time after obtaining the charter, and the first call having been paid in the committee will call a general meeting of shareholders. Upon the conclusion of the inaugural general meeting the work of the promoting committee will be taken over by the President of the Corporation and the committee be dissolved.

It is semi-officially explained that the Japanese Government cannot properly hold railways and collieries in Manchuria, over which Japanese suzerainty is not established, as in Corea, without prejudicing the sovereignty of China. In the treaty signed at Peking by Baron Komura it is agreed that a company shall be formed, capitalised jointly by the Japanese and Chinese Governments and people, to conduct the Chinese Eastern Railway, after the evacuation of Manchuria by the Japanese troops. The formation of the new company is an outcome of the treaty. It is further stated that the promoting committee will be appointed in a few days, and a valuation will be made of the Chinese Eastern Railway, the Fuchung and Yentai Collieries, and works at Tairen. The capital of the new company will be fixed at Y 150,000,000. The railway and other property held by the Japanese Government in Manchuria will be valued at Y75,000,000, and the Government will take shares in the company to this amount. Shares will be issued for the remaining Y75,000,000, which will be issued for the improvement of the railways, the construction of rolling stock, and as a working fund for the collieries, etc.

Several names have been nominated for the presidency and vice-presidency of the company including those of Mr. Oura, ex-Minister for Communications; Mr. Den, ex-Vice-Minister for Communications; Mr. Sengoku, President of the Kiushu Railway; and Viscount Hotta, a member of the House of Peers.

JAPAN'S RAILWAY PROBLEMS IN MANCHURIA

It is evident from accounts received from Manchuria, says a Peking letter, that Japan will have to spend much money on railway betterments before her principal holding is of much value. The first great question, naturally, is whether the Japanese will change the narrow 3′ 6″ gauge to the 4′ 8½″ standard gauge. If they make this change, in addition to all their other expenses, they will have to invest at least £1,000,000 in providing entirely new rolling-stock to replace that which they borrowed from their own railways in Japan.

The first of these, and one of the most expensive, is the replacing the embankments, bridges, culverts, and rails between Changtu and Kungchuling. The Russians utilized the ample time given them by the slow Japanese advance to rip up a 50 m. gap on the railway and to carry all the rails and steel work far back into their own bases. It is this gap beyond the Japanese front which will have to be mended at Japanese expense. From a £250,000 to £500,000 will be necessary for this.

The second expense is the repairing and re-building of stations, and the repairing and improvement of the godowns and railway property. This if carried out along the whole 450-ms. of the main line, will necessitate the disbursement of another £500,000.

The third expense is the completion and improvement of Dalny, which must be attended to, since unless this Russian failure can be turned into a Japanese success within 2 or 3 yrs., it will be a white elephant in the government's hands. This expense then must be entered into without delay. The most conservative estimates hold that another £500,000 will have to be put into Dalny at once and a further £500,000 expended slowly during the next 5 or 6 yrs.

The fourth expense is the development of the railway coal mines. There are three of these mines: The Fushun, the Yentai, and Wafangtien. Of these three, under the Russian régime, the second mine, the Yentine, was the biggest producer, but the Japanese have already shown a strong inclination to push the Fushun mine and to look after the other two very slightly. If they develop the three simultaneously in order to take coal, one of the great articles of freight, a further £500,000 will have to be sunk in machinery and installation of improved appliances.

Thus making the trunk line a standard-line; completing the gap made in the N.; repairing and rebuilding stations and railway properly, modernizing the Port of Dalny, and developing the coal mines and giving them improved appliances and rolling stock, will absorb a sum which may vary from £2,000,000 to £4,000,000 according to the thoroughness with which railway affairs are attended to. With all this additional money sunk in Southern Manchuria the Japanese Government will have to strain every nerve to make the railway a paying proposition. How will it act?

Russia spent 160,000 *yen* a mile for the construction of the railway from Dalny at Changohun, a distance of 500 miles. The line may therefore be assessed at 80 million *yen*. Taken together with the prospective disbursements enumerated above, the capital of the railway may be put at 120 million *yen*.

Receipts from the railway will be as follows:—

	Yen.
Freight on beans (amount, 2,510,000 *koku*)	3,200,000
Freight on coal (2,000,000 tons)	8,000,000
Passenger receipts	1,800,000
Total	13,000,000

The running expenditure will amount to 7 million *yen*, so that a balance of 6 million *yen* may be netted as profit. Moreover, the profit from by-works will amount to 1,500,000 *yen*, including a million *yen* from the colliery and 500,000 *yen* from the settlements and warehouses. The total profit will reach therefore 7,500,000 *yen*. Of this sum, 3,200,000 *yen* may be paid as a preferential dividend of 8 per cent on the new capital amounting to 40 million *yen* and 800 000 *yen* put aside as reserves. The balance, 3,500,000 *yen*, will represent the Government's income accruing from the existing railway, valued at 80 million *yen*, the rate of interest being about 4.3 per cent.

There can be no doubt that large quantities of coal will be moved down the line regularly, as soon as the evacuation is complete, and that the export of coal from Dalny will be attempted on a very large scale during the winter months The Fushun mine is at present producing 1,000 tons of coal a day. It is not too much to expect that the various coal mines will be placing 3,000 or 4,000 tons of coal at the pit-heap a day in less than a year's time, and that half of this amount will be available for export. It is quite certain that Dalny will be the principal shipping point, and that coal will flow from here all over the N. Far East. This will be one source of profit.

The large number of trucks which will be constantly entering Dalny will be able to allow return freight of a coarse kind to travel back to the vicinity of Mouken for next to nothing; and therefore people must be prepared to see the Japanese Government offering the very greatest inducements to its subjects to settle in Dalny, and from there to conduct the import trade of Manchuria to the detriment of Newchwang.

Then it must be remembered that at Ta Shih-chiao, Liaoyong, Moukden, Tiehling, Kaiyuan, and Changtu, the government will be able to lease to its own people the immense military godowns constructed by both the Russians and the Japanese places which can be turned into excellent depots for the collection of Manchuria's raw products and the shipment to the seaboard. All this will be in purely Japanese hands and, *pace* the cry of the open door, no others but Japanese need apply for floor space. Japanese banks established at all these centers will give the best possible facilities to their own people, and, therefore, godown-room, financing and goods carriage in her own hands, Japan will attempt to create one of those hidebound monopolies which a study of her present condition shows that she dearly loves.

That, of course, is only one side of the picture; for it remains to be seen how much the competition of the purely Chinese railway on the other side of the Liao River, will tend to diminish the profits of this subtle speculation.

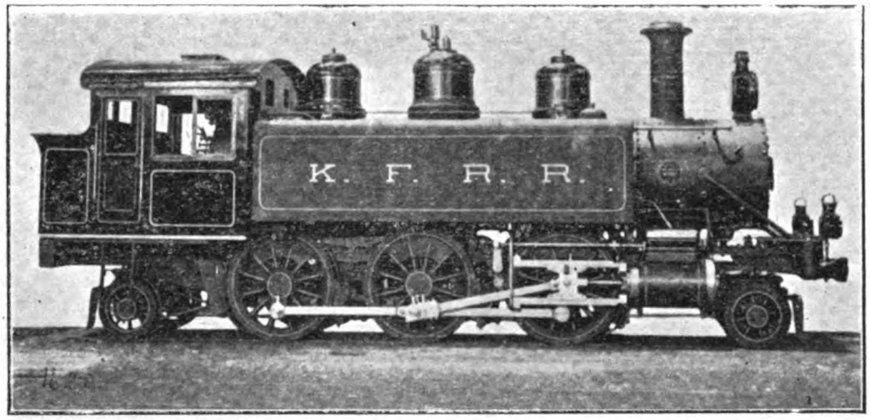
REFUSE DESTRUCTOR HONGKONG.—At the meeting of the Legislative Council this afternoon, the following report of proceedings of the Public Works Committee at a meeting held on the 21st inst., was laid on the table and adopted by the Council:—

The committee had before it a scheme for reclaiming an area of land immediately west of Cadogan Street and of Chater Street (extended), and erecting on this a destructor capable of dealing with 100 tons of refuse per day, together with quarters for a superintendent and 300 coolies, the estimated cost being as follows:—

Reclamation of site, including 50-foot road in extension of Chater Street	$160,700
Destructor buildings, including pile foundations, chimney, approach road (incline) and iron boundary fence	98,100
Machinery, including 12 cells and furnaces with fan and engine, two boilers, slab-making machine, tram-lines and trucks, etc	82,500
Quarters for superintendent	15,000
Do. 300 coolies	75,000
Total	$431,300

After full discussion, it was resolved unanimously that the committee are prepared to recommend, in principle, the provision of a destructor for dealing with the refuse of the City of Victoria, but advise that, before any further steps are taken, the makers of the type of destructor which it is proposed to adopt should be requested to send out a representative to investigate local conditions and submit a tender, accompanied by a guarantee for three years, for dealing effectively with 100 tons of refuse per day.

JAPAN SUGAR REFINING COMPANY.—The Board of Directors of the Japan Sugar Refining Company, of Tokio, who are opposed to the incorporation of their company with the Sugar Refining Company of Osaka, as advocated by the majority of shareholders, sent in their resignations *en bloc* at a general meeting of the company on the 18th inst.



TYPE OF AMERICAN LOCOMOTIVE IN USE ON THE SEOUL-FUSAN RAILWAY. BUILT BY THE BALDWIN LOCOMOTIVE WORKS

RAILROAD NEWS

SWATOW CHAO-CHOU-FU RAILWAY:—The railway which is to connect Swatow with Chao-chou-fu, the concession for which was given in December, 1903, to one Chang-yu-nan, a Chinese merchant, who has for many years been resident in the Dutch Indies, has not advanced as quickly as was hoped, owing mainly to the great difficulty the railway company has experienced in purchasing land. After the settlement of the Am-pou riot, in which early in 1905, two Japanese workmen were killed, work on the railway was again delayed by the opposition of the local gentry and merchants, who alleged that the proposed line of route threatened injury to existing water rights. The protest was supported by the villagers, the prices offered by the railway company for the land, based on the Luchan Railway regulations, not being considered adequate. The question was investigated by the Taotai and a Commissioner from the Board of Commerce, who decided that the complaint as to the injury to water rights was frivolous, but recommended an advance of about fifty per cent. in the prices to be given for the land. This compromise seems to have been satisfactory, and since August work has been proceeding more rapidly. An embankment has been made, and rails laid down as far as Ampou, a distance of about ten miles. The total length of the line will be thirty-two miles, and there are to be seven intermediate stations.

All material for the railway is supplied by the Japanese contractors, who have not offered any public tenders. The Japanese contractors for the railway are making a sad muddle of the work, and the shareholders are already beginning to question whether, when the accounts are squared up, the actual expenditure will be below the estimate of the English firm which was first talked of in connection with it.

THE PEKING-KALGAN RAILWAY:—Work on the Peking-Kalgan railway is progressing very rapidly under the charge of Taotai Chan, an American educated civil engineer, and it is expected that the whole line will be completed before the close of the year 1907 instead of 1908, as at first contemplated. Viceroy Yuan Shih-kai wishes it finished and opened to traffic as soon as possible with a view of having it extended to the Mongolian capital or Urga and beyond as far as the Siberian frontier. All the railway materials ordered from France have arrived at Tientsin and have been delivered to the railway administration which is under the directorship of Taotai Cheng. No foreigners are employed on this line.

KIANGSU RAILWAY CO:—The formation of the Kiangsu Railway Company, in connection with which a meeting was held on the 10th of June at Shanghai, has been made public. H. E. Wang Tsing-nur, Vice-President of the Board of Commerce, has been appointed the Director-General, and Mr. Chang Chong the Chief Adviser, of the same Board, as Director. The capital is ten million dollars, of which two million was subscribed at that meeting. The Company are to build railways throughout Kiangsu Province, but as a preliminary step the sections between Soochow and Kashing and subsequently Kashing and Shanghai are to be constructed.

SOOCHOW-NINGPO RAILWAY:—It is stated that the British Chargé d'Affaires is still working energetically concerning the Soochow-Ningpo railway concession, as the British and Chinese Corporation is desirous of connecting it with the Shanghai-Nanking Railway. A representative of the said Corporation has informed the Peking Government that if the line is built by his Corporation China can get it back in fifteen years, but if it is to be built by the Chekiang merchants, it will not be completed in thirty years.

FUKIEN RAILWAY:—Chen Pao-sin, a prominent resident of Fukien, who was appointed to manage the Fukien Railway, recently engaged two French engineers who are now surveying the road. The Japanese Minister at Peking has lodged a representation with the Waiwupu declaring that the construction of railways and opening of mines in Fukien ought to be done in consultation with Japan since China agreed that Fukien Province should not be ceded to any other country, and Japan's rights in arbitrarily engaging French engineers had been disregarded.

THE SANYO RAILWAY CO. held a general meeting in Kobe on April 28th. The net profit for the last half of 1905 was *yen* 1,528,408.16 to which a balance of *yen* 961,241.48, brought forward from the previous account, was added, making a total of *yen* 2,489,649.64. Of this sum, *yen* 76,500 was put to reserve, *yen* 13,500 was paid to employees as a bonus; *yen* 1,642,500 as a dividend at the rate of 10 per cent. per annum; and the remainder was carried forward to next account.

SEOUL-FUSAN RAILWAY:—It is officially announced that the State purchase of the Seoul-Fusan Railway will be effected on the 1st of July. This transaction will represent, it is believed, the only action which the Government will take during the present year under the provisions of the State-Purchase Law.

RAILWAYS IN KOREA.—The tunnel on the Seoul-Wiji railway at Chayuryong was completely finished on May 24th. The reconstruction of this line is gradually proceeding and will include a bridge over the Yalu River and the alteration of the gauge of the railway connecting Antung with Mukden to conform with the Korean railroads.

The light railway which is to connect Hamheung with the coast is also being completed.

TENGHYUEH YUNNAN LINE:—Exception is now being taken by the Chinese to the construction of the Burmah-Yunnan line by the British, and absurd petitions have been sent in from some quarters to the effect that the Chinese will build the line themselves. The Viceroy, however, is of the opinion that the utilization of British capital is all right providing a time limit be strictly fixed for the foreign control of the line.

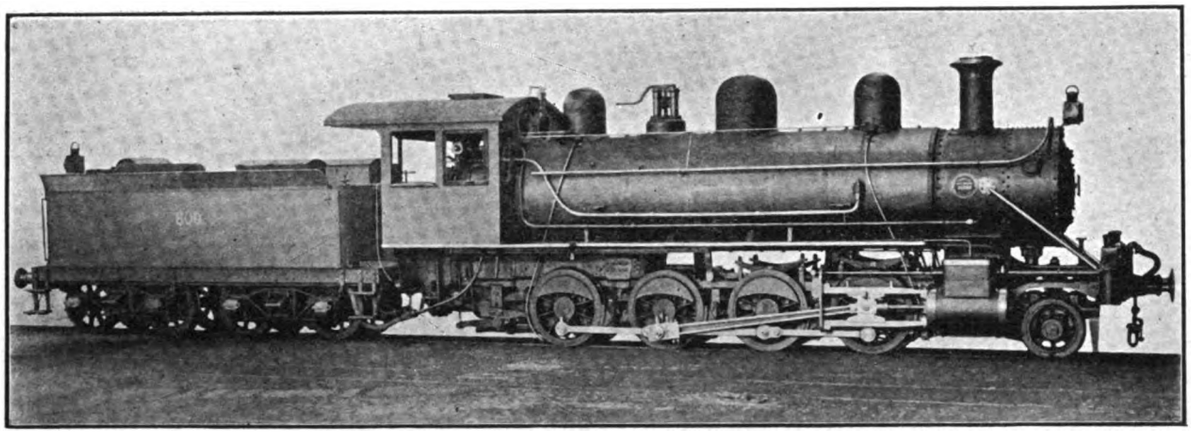
SHANTUNG RAILWAY CO:—The traffic on the Shantung railway is gradually developing, and the daily earnings are increasing. The report for last year shows a very satisfactory state of affairs, the railway being able to pay, notwithstanding very heavy expenses a dividend of three and a quarter per cent., an increase of one per cent. over the previous year.

SINGAPORE-KRANJI RAILWAY:—The earnings of the Singapore-Kranji Railway during April amounted to $16,883.55 against $22,115.72 for the corresponding period of last year. The total receipts for the first four months of the year compare unfavourably with that obtained during a similar period of the previous year.

THE FAT SHAN RAILWAY:—The section of the Yuet Han Railway, from Canton to Fatshan, seems to have deteriorated from bad to worse since it was handed back by the Americans to China. Some of the railway stations along the line are built of bamboo, and are the resort of gamblers and opium smokers.

MANCHURIAN RAILWAYS:—Over sixty-four miles of the Chinese Eastern Railway between Changtu and Kungchulin were delivered to the Japanese Commission, headed by Major-General Nakamura, on the 1st of June.

INDIAN RAILWAY PURCHASE:—Final arrangements for the Kalka-Simla Railway purchase by the Government of India for £300,000 are now being made by the Secretary of State.



BALDWIN LOCOMOTIVE, CLASS 10-30 E 32, BUILT FOR THE IMPERIAL GOVERNMENT RAILWAYS OF JAPAN, GAUGE 3′ 6″.

RAILWAY CONSTRUCTION IN CHINA

The United States and China, the two great continental countries lying in the Temperate Zone, are both ideal lands for gigantic systems of railways, but while the former has 1 m. of railway for every 360 inhabitants, China has about 1 m. for every 130,000 inhabitants. It was stated in 1900 that there were 30,000 ms. of railway in Asia, two-thirds of which belonged to British India.

The Trans-Caspian and Trans-Siberian Railway accounted then in its unfinished state for 3,200 ms., Japan had 3,200 ms., French Indo-China 120 ms., but in Cochin China, Anam, and Tonkin they were soon to have 2,400 ms. Java had 1,000 ms., Turkey in Asia 1,500 ms. finished and 600 projected or under construction, and Russia was to join Astrakhan to the general Russian railway system, while China at that time had only 300 ms. completed and owned by the Government, which it was stated were very remunerative, and European syndicates had obtained concessions for 3,600 ms. of railway in China, the construction of which is already well advanced. These will traverse regions rich in minerals and agricultural products. The splendid waterways afford great facilities for transit, and China is better supplied with waterways both natural and artificial, than any other country in the world, except, perhaps, Holland, but away from them carriage by land is often expensive. It sometimes costs 50 cts. per ton per m. to take coal by land in China, while in Great Britain the cost is from 1 to 2 cts. per m. a ton and in the United States half a cent for the same distance. The coal fields in China have been laid down on a grand scale. To instance only one, that of Shansi, with from 15 to 40 seams, has a continuous field 13,500 ms. in area equal to the best Pennsylvania anthracite. There is also a rich bituminous deposit in the same province. So that in the mere carriage of coal there should be a fine future for railways outside of passenger traffic, freight trains, market produce, etc.

Work was recently commenced on the Chengchou-Kaifeng road. It seems certain that within a few mos. what now is a journey of a day and a half to two days across a sandy desert will be a matter of only a few hrs. If Kaifeng is then connected by rail with Nanking and Shantung, as it most likely will be in the near future, what used to be a journey of mos. into the far interior of China will easily be made in a day or two. While the survey between Chengchou and Honanfu to the west has been completed, as yet nothing is being said or done as to the construction of this part of the line, but it seems certain that a line passing through Honanfu and running on to Hsianfu, at least, must eventually be constructed.

It is believed that a commencement will be made with the Changchikou (Kalgan)-Kulon Railway before or at the same time as the opening of the Peking-Changchiakou Railway. It is probable that Russia will object to the Chinese building the above line, but H. E. Yuan Shih-Kai is urgently informing the Chinese Government that there is no valid reason against the carrying out of the scheme.

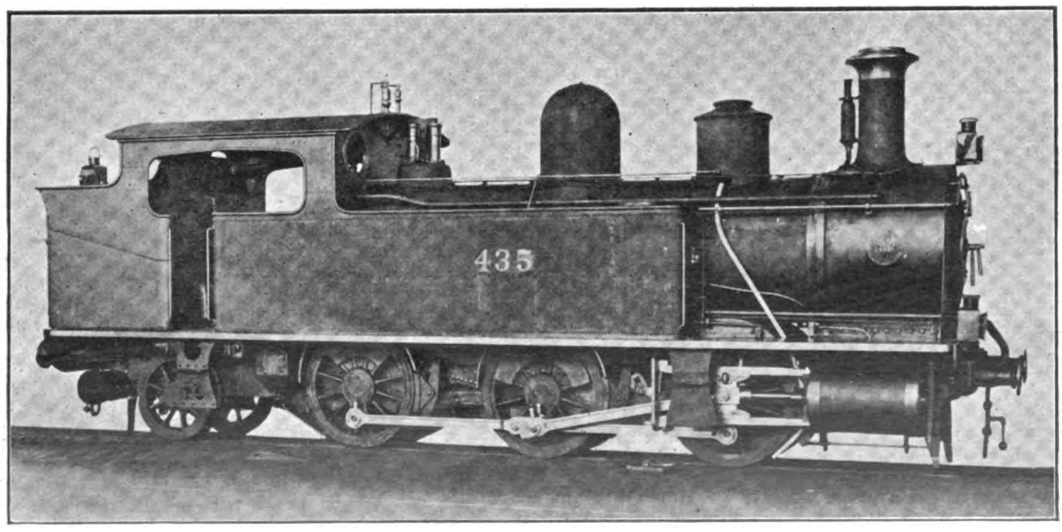
The railway through Yunnan, for which the French have obtained a concession, is progressing, but not very fast, owing to a scarcity of coolies. It is hoped in course of time to connect Yunnan with Szechuan, but the viceroy has refused to grant a concession to any foreigner. Public opinion fully indorses his views.

The Chengting-Taiyuan narrow gauge line is about finished, much to the credit of the French energy, financing, and engineering that called it into being.

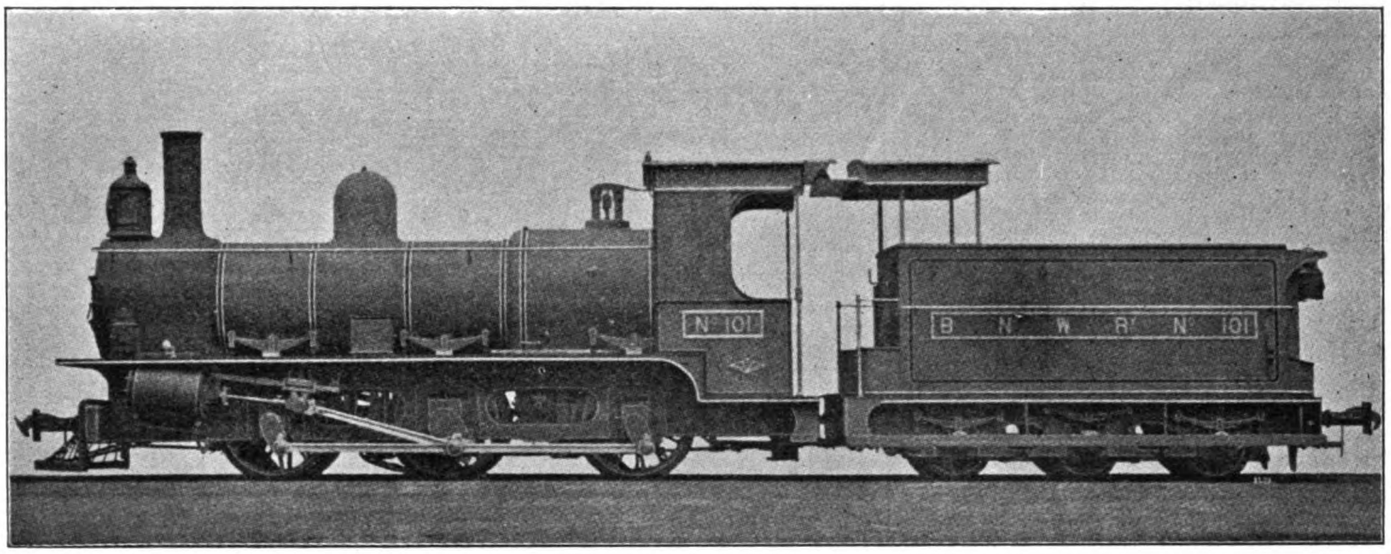
The Peking Syndicate Railway, a short, slanting line bisecting and bisected by the Luhan line, has for some months been doing the work for which it was mainly built, viz, bringing coal from the anthracite fields near Chinghua, on the border of Shansi, to Taokou, the head of navigation of the Wei River, a regular trade route to Tientsin.

RUSSIAN RAILWAY ENTERPRISE IN ASIA

A traveler who has just returned from Kulong and Kiatka and who is quoted by the Peking correspondent of the Vsahi Shimbun, gives an account of Russian enterprise in that quarter of Asia. He says that a railway between Kulong and Kiatka would have been constructed last year had not the war interfered with the project. The line will now be actively pushed. It is a branch of the Trans-Asian Railway and Russian surveyors have found a satisfactory route.



BALDWIN LOCOMOTIVE, CLASS 8-26½ D 7. BUILT FOR IMPERIAL GOVERNMENT RAILWAYS OF JAPAN, GAUGE 3′ 6″



(From the Indian and Eastern Engineer.)

GOODS LOCOMOTIVE, BENGAL AND NORTH-WESTERN RAILWAY, INDIA, BUILT BY MESSRS. DUBS & CO., GLASGOW. METER GAUGE

THE CANTON-HANKOW RAILWAY

A meeting of the shareholders of the Canton-Hankow Railway Company, presided over by Wong-Shiu-ping, Vice-Chairman, was held at the yamên of the late Governor of Canton on July 8th.

The Vice-Chairman opened the meeting by referring to the amount of profits contributed to the Government by the various railway companies and asked the shareholders to confirm the following suggestions:—

All profits derived from the Railway, after deducting all charges, will be divided into 20 shares to be appropriated as follows:—

1—to be paid the Government.
14—to be divided among the shareholders.
2—Reserve.
1—to holders of 20,000 shares.
1—to holders of 10,000 shares.
1—Charitable Institutions and the 72 business guilds.

The Vice-Chairman informed the meeting that all affairs were handed over on the 2nd of this moon and that the total amount collected was $8,000,000.

A petition has been sent to the Viceroy requesting him to wire for the return of Jeme Tin-you to act as Chief Engineer.

The shareholders were asked to confirm the appointment of two Inspectors-general, four auditors, and thirteen officers.

A further meeting was fixed on the 1st day of next moon.

None of the shareholders present said anything; they all listened and then left. Much dissatisfaction seemed to have existed.

THE TARLAC RAILWAY

The new Tarlac Railway, which some months ago was promoted and financed by Walter E. Olsen and other local merchants, will soon be an assured reality.

Mr. James Davis, representing the Lima Locomotive Works, closed a contract with the Tarlac Railway Company for two 30 ton locomotives and the necessary 24 rails to equip twelve and one half miles of railway line.

The order placed by the Tarlac Railway Company will foot up to over $120,000, United States currency. It has been stipulated in the contract that the rails must be laid down at Manila not later than December 1st. The locomotives are also due about this time,

The engines are known in railway parlance as "saddle backs." They are particularly adapted to the requirements of the latest Philippine railroad which for a distance of a dozen miles, taps a district populated with over sixty thousand people.

Mr. Davis has spent some time in Australia and while down there secured some fat contracts for the big Lima concern. He will leave here within a few days for Canton, where his company has been invited to bid on several large compound locomotives for the Canton-Hankow Railway now operating from Canton to Sam Shui, China.

Mr. Davis declares that he has never noted such a progressive spirit manifested in any country heretofore visited, as has been the case during his brief stay in the Philippines.

DUMMY LOCOMOTIVES SOLD:—Several locomotives, and six miles of rails, formerly used on the old Malabon dummy line, have been taken to the warehouse of the Philippine Transportation company. This material will be employed by the Insular Lumber Company in a log road through its possessions in Negros.

BRITISH LOCOMOTIVES FOR THE PHILIPPINES

An important contract for supplying eight powerful six-wheeled coupled bogie freight locomotives for the Manila Railway Company has, in the face of severe continental competition, been awarded to Messrs. Kerr, Stuart & Co. (Limited), of the Californian Works, Stoke-on-Trent. Early delivery was an important feature in the placing of the contract with British engineers, and the locomotives are to be shortly shipped to the port of Manila.

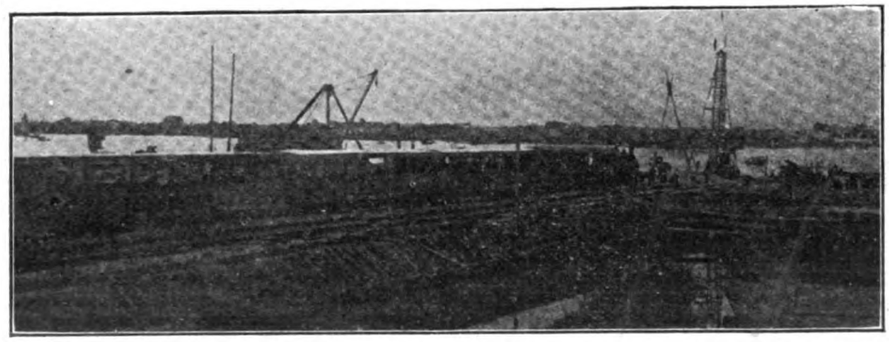
RAILWAY CONSTRUCTION IN INDIA

SIMLA, JUNE 30.

Following are the Railways under progress:—Ahmedabad-Dholka-Dhan-duki extension, estimated to cost Rs.6,946; Ahmedabad-Parenty-Idar Road-Brahmakhed Rs. 5,501; Bengal and North-Western Benares-Allahabad (with a branch to Mirzapur) Rs. 24,960; Pertabganj-Ghoraghat Rs. 5,580; Azamgarh-Tanda Goshaiganj Rs. 15,061; Bansdih-Manurghat-Gogra-Chandiarighat Bridge Rs.4,546; Chapra-Mashrak Rs. 4,327; Samastipur *via* Rowsera-Sitamari-Muzafferpur Rs. 10,600; Durbhanga-Khagaria-Mohammadpur-Mozafferpur Rs. 19,070; Bengal-Nagpur-Bilaspur-Mangels-Mandla Rs. 180,910; Gurumasini Hill to Sini Rs. 21,477; Kamptee Ramtek-Tumsar Road-Katangi Rs. 31,045; Bombay Sind connection Rs. 13,500; Bombay-Baroda and Central India-Agra-Hathras Rs. 5,311; Nerbudda Valley Railway-Barwaha-Bodell Rs. 14,908; Burma-Moulmein-Kawkerick-Mywaddy Rs. 3,600; Moulmein-Wageru Railway Rs. 62,889; Pyinmana-Magwe Rs. 46,100; Southern Shan not known; Pegu Syriam Rs. 33,479: Eastern Bengal State Railway-Kissenganj-Titalia, Jalpiguri Rs. 15,599: Netrokona-Langar Bazar Rs. 15,509; Ramgya Tezpur Rs. 20,491; Forbesganj Nepal-Frontier not known.

The Great Indian Peninsular-Bellurpur Warangal (1) Western Route not known, (2) Route through the Nizam's territory Rs. 1,32,947, (3) Chord line Barichinganghat and Wardah not known; Kirpirath not known; Karur Rajapur Rs. 8,190; Kunch to the river Jumna with a branch to Madhogarh Rs.

(Continued on page 85.)



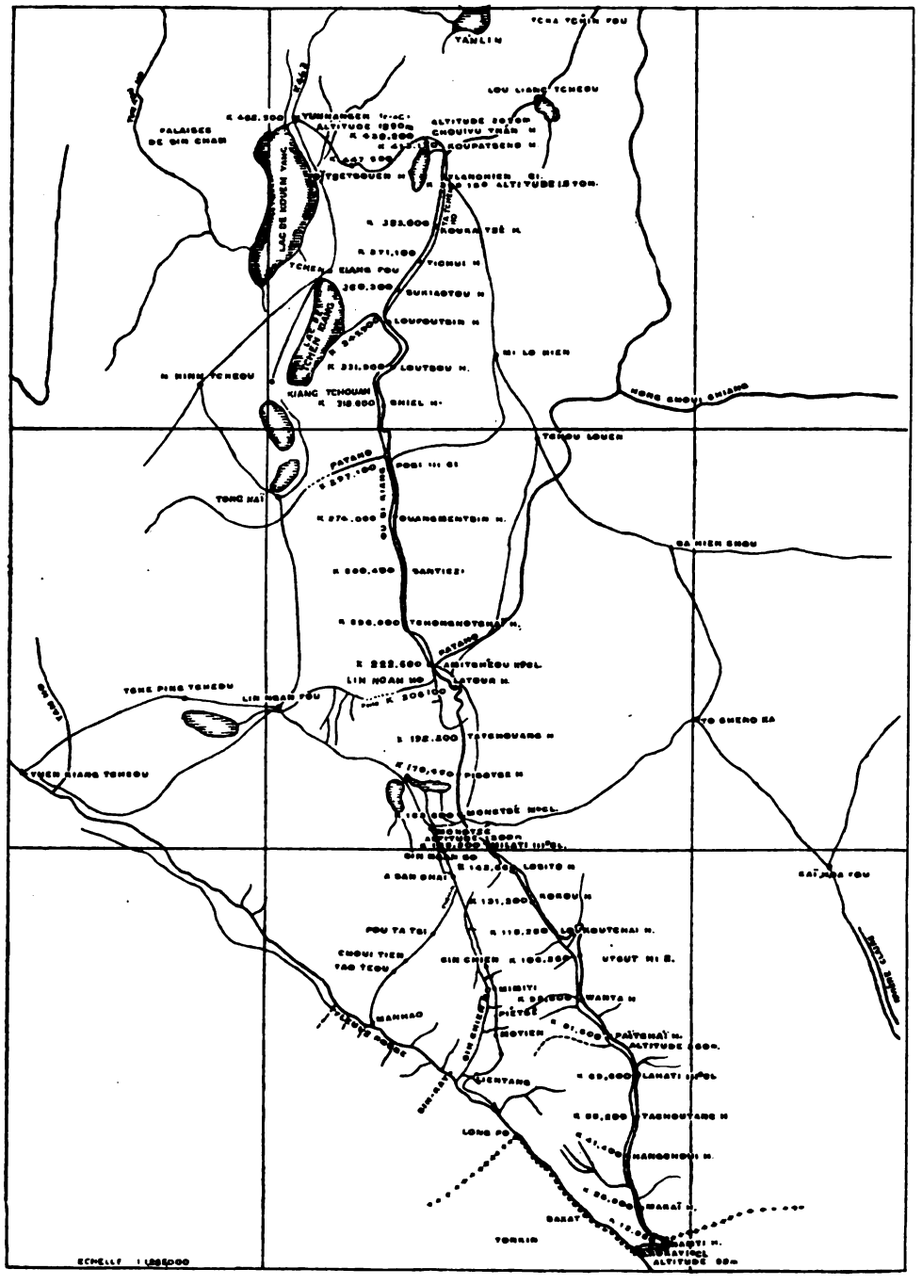
CANTON AND HANKOW RAILWAY, AT TERMINUS ON WEST RIVER

THE YUNNAN RAILWAY

Many articles and communications from correspondents about the progress of work on the Yunnan Railway and the treatment of the Chinese laborers employed by the contractors, have appeared in the press of the Far East during the last month.

The country traversed by the road is in a part of the world rarely visited by travellers and reliable information and data is difficult to secure. The least authentic information came from Mr. Little, who made the trip down to the coast from Yunnan, but his narrative is more of a descriptive nature than interesting to engineers. Probably the most reliable information on the progress of the railway is contained in the Report of Mr. J. Neumann, the Chinese Imperial Collector of Customs at the inland treaty port of Mengtsz, who submits the following interesting data to his superiors in addition to two valuable map and profile chart which were furnished him by officers of the Company.

"An important element contributing to the prosperity of the district is the construction of the railway from the Tonkin frontier to Yün-nan-fu; all along the line work is now being carried on, and as the railway in this province bids fair to become a reality, a summary outline up to date of the history of this great undertaking may be recorded. On the 9th and 10th April, 1898, an exchange of despatches took place between M. DUBAIL, Chargé d'Affaires of the French Republic, and the Tsungli Yamên at Peking, embodying the following Agreement: the Chinese Government concedes to the French Government, or to the French company whom the latter may designate, the right to construct a railway from the Tonkin frontier to Yün-nan-fu, the capital of this province, the Chinese Government having no further obligation than to surrender the necessary land for the line and its dependencies. These conventions are to cement and strengthen the ties of friendship which unite France and China. The French Government thereupon designated, for the construction and exploitation of the line from Tonkin to Yun-nan-fu, the Compagnie Française des Chemins de Fer de l'Indo-Chine et du Yunnan, a company which had been started by the leading financial establishments of France, and this company, in its turn, entrusted the work to the Société de Construction des Chemins de Fer Indo-Chinois. The alignment of the future railway was studied by the delegates of the French Government, and subsequently by the delegates of the Compagnie Française des Chemins de Fer de l'Indo-Chine et du Yunnan. The line is to start from Hokow, connecting there with the Tonkin line to Haiphong and its branches, and is to end at Yün-nan fu. The gauge of the line is to be 1 metre (3 feet 3 inches). Once the main line has been completed, and if the parties concerned deem it expedient, after an understanding has been arrived at, between the high provincial authorities on the one side and the French Minister and the Wai-wu Pu on the other, as to the mode of procedure, branch lines connecting with the main line may be constructed. According to the Agreement signed at Peking on the 29th October 1903 all engines (machinery), supplies (stores), and materials necessary for the construction and exploitation of the railway are to be exempt from Import Duty. The original survey resulted in a decision to follow the Red River as far as Hsin-hsien and then to continue along the valley of the Hsin-hsien River on to the Mengtsz plain; from here the line was to proceed by way of Lin-an, T'ung-hai and I-liang-hsien to Yün-nan-fu. A thorough study of this first plan revealed many technical difficulties, and, after full consideration, the company, in November 1902, submitted an alternative scheme, according to which the line is to lead from Hokow through the Nan-hsi Valley on to the Mengtsz plain, and thence by way of A-mi-chou to Yün-nan-fu. In January 1904 the French Government gave its sanction to this new *tracé*, and shortly afterwards work was started along the whole line. The total length of the line will be about 461 kilomètres. Before the French Government finally sanctioned the new *tracé*, a commission of mining engineers was sent into this province to study the question as to how far the altered project would affect the facilities for the transport of the output of the mines which, at one time or another, would be exploited; the result of their examination showed that no difference was apparent, the one project being as favorable as the other for the conveyance of the mineral products. Manifold and varied have been the difficulties of the company, and among these, notably, the scarcity of labor which prevailed at the outset along the entire line, and, in addition, the unhealthy climate in the lower region of the Nan-hsi Valley. At the time of writing, however, a great change is visible; laborers are now plentiful, and, in the much-dreaded Nan-hsi Valley, the erection of better quarters for Foreigners and Natives has vastly improved the state of affairs. There are to be nearly 100 tunnels, the longest of which will be about 600 mètres; a large number of viaducts, bridges, and galleries have to be constructed; and the whole bids fair to become a grand monument of French enterprise and genius. The line is divided into sections, which have been handed over to contractors, mostly of Italian nationality. It is hoped that in the spring of 1907 the line will be completed as far as Mengtsz, and the following year the entire line is to be thrown open to traffic.

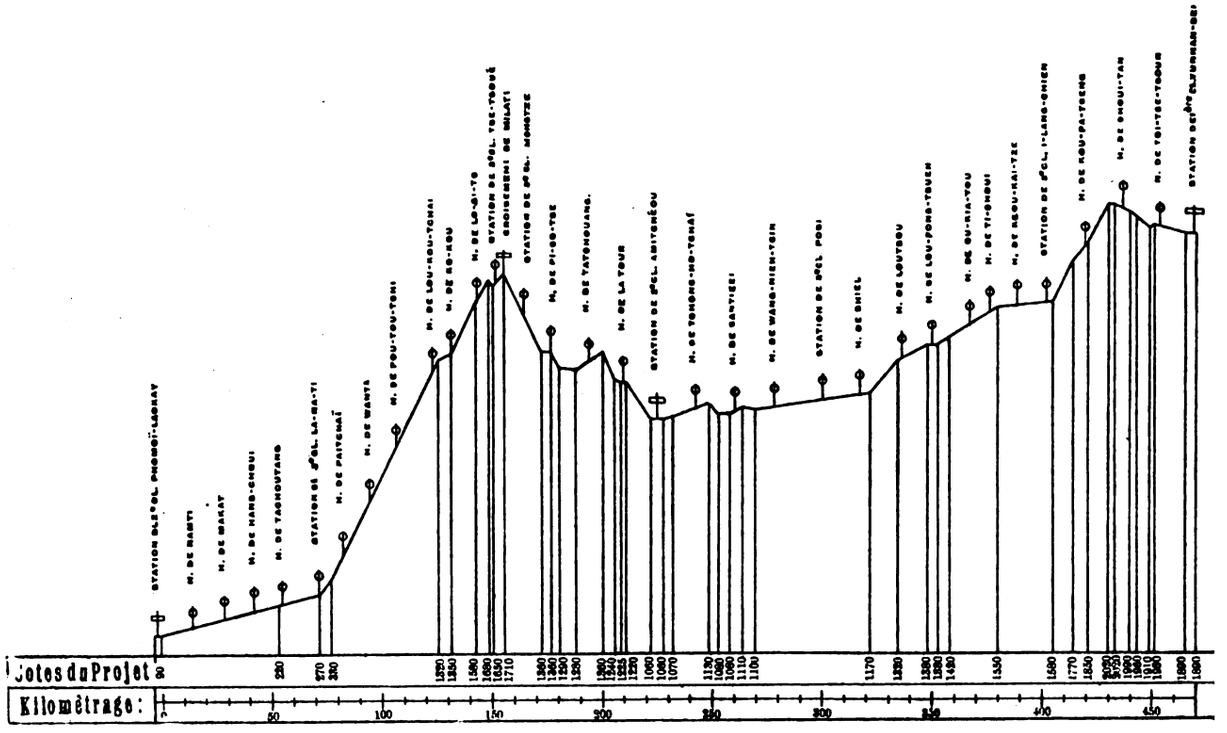


(From Trade Report of the Imperial Maritime Customs—1905.)

MAP OF THE COUNTRY BETWEEN YUNNAN-FU AND LAOKAY ON THE CHINA-TONKIN BORDER, SHOWING ROUTE OF THE YUNNAN RAILWAY

The tunnel which has to be made at Chu-yung-kwan, a pass beyond Kankao on the Peking Kalgan railway is driving the engineers mad with the difficulties it is presenting, and one of them has committed suicide. We recall the words of a famous engineer when it was first announced that the Chinese intended building the line without foreign assistance and under the direction of a prentice native engineer of the northern railway. "If.....can build that tunnel, he's a cleverer man than he has hitherto proved himself."

It is now stated that a Penang syndicate has been formed to take over the Penang Hills Railway and to put it in working order.



(Trade Report of the Imperial Maritime Customs)

PROFILE OF THE COUNTRY BETWEEN YUN-NAN-FU AND LAOKAY.

RAILWAY CONSTRUCTION IN INDIA

(Continued from page 83.)

5,759; Kurlatrombay Rs. 1,138; Murtazapur-Pesgaon Rs. 14,022; Jodhpur-Bikanir, Borawar Hissar not known; Madras Dharmapuri *via* Palakedu to Krishnagiri and from Palakedu to Bangalore Rs. 18,778; the Nizam's guaranteed. Wadi Kophal not known; North-Western Jhang Sangla Rs. 17,190; Lodhran Khanewal Rs. 3,045; Shorkot road Chichoki Rs. 35,575; Khanpur Chackran Rs. 5,752: Patiala Jakhal Rs. 9,534; Aohtak Bhewan Rs. 5,752; Oudh and Rohilkhand, Balaman Sitapur Rs. 10,807; Rosa Bokharpur—not known; Bokharpur-Sitapur—Rs. 7,422; Cawnpur-Rae Bareli Rs. 18,733; Rohilkhand and Kumaon; Philibhit Barmdeo (re-survey) Rs. 8,980. South Indian Madras Beach to Palavaram doubling Rs. 21,200; Pullachi-Palghat Rs. 17,750; Terruturipundi to Vedaraniyam not known; Southern Mahratta Gadag-Nalvigi Rs. 14,371; Satora Road-Satara City Rs, 5,000.

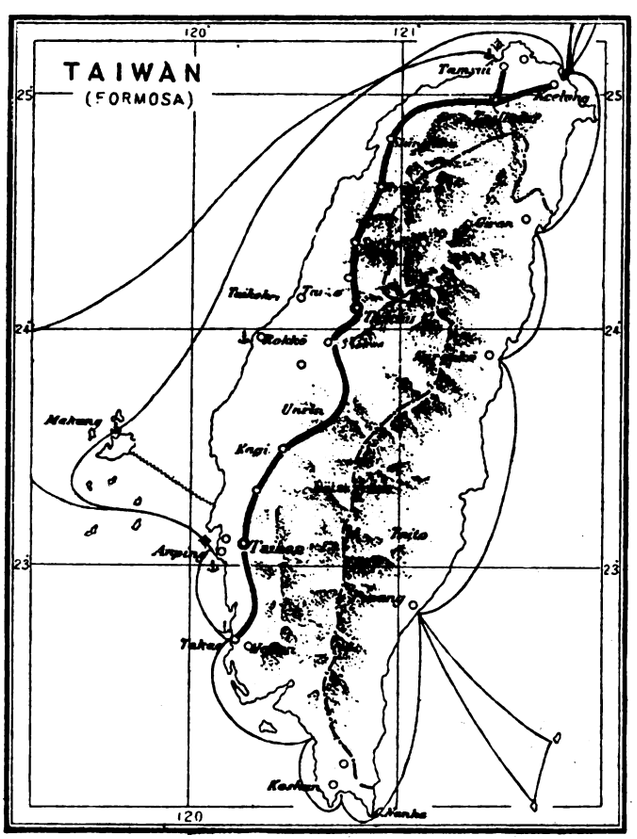
(Bengalee)

FORMOSA GOVERNMENT RAILWAY

With the exception of about nine miles between Hakkoko and Koroton, where some extensive bridging work still remains to be done, the line connecting Kelung in the north and Takow in the south is complete. The journey between the capital Taihoku and Tainan, the largest city in the south, can now be accomplished in 14 hours, including the time spent in getting from Hakkoko to Koroton by trolley. The railway authorities therefore contemplate erecting a good foreign hotel at the capital, for they consider that if only suitable accommodation were provided for travellers, many of them, now that communication between north and south is easy, might make a visit to Formosa, which, beautiful and interesting though it is, has so far failed to attract the globe trotter and the money that he leaves behind him. During 1906 work will be commenced on the bridges that remain to be constructed, and they should be completed in about two years' time. Okura and Co., a Japanese firm, were the successful tenderers for the supply of most of the bridging materials, which will come from the United States.

SHANTUNG RAILWAY

The Shantung Railway Company reports that in 1905 the traffic showed a sufficient development, while in 1904 there was an average weekly traffic of 10,748 passengers and 4,695 tons of goods, for 1905 there were 15,452 passengers and 5,971 tons of goods. In 1905 the total traffic amounted to 803,527 passengers (558,868 in 1904) and to 310,482 tons (179,270). Among the goods coal takes the first place with 158,115 tons in 1905 and 68,921 tons in 1904. Also it may be mentioned that of agricultural produce from the interior, and as beans, oil, cotton, earthenware, straw plaitings, etc., continually larger quantities are transported. The financial result has been an income of 1,912,296 Mex. dollars, against 1,246,047 Mex. dollars for 1904. After writing off m.50,000 on stocks, and after giving m.300,000 to renewal purposes there remains a net profit of m.2,063,572, out of which m.103,179 are applied to special reserve, while m.1,755,000 are distributed as a dividend of 3¼ per cent. on the paid-up share capital of m.54,000,000.



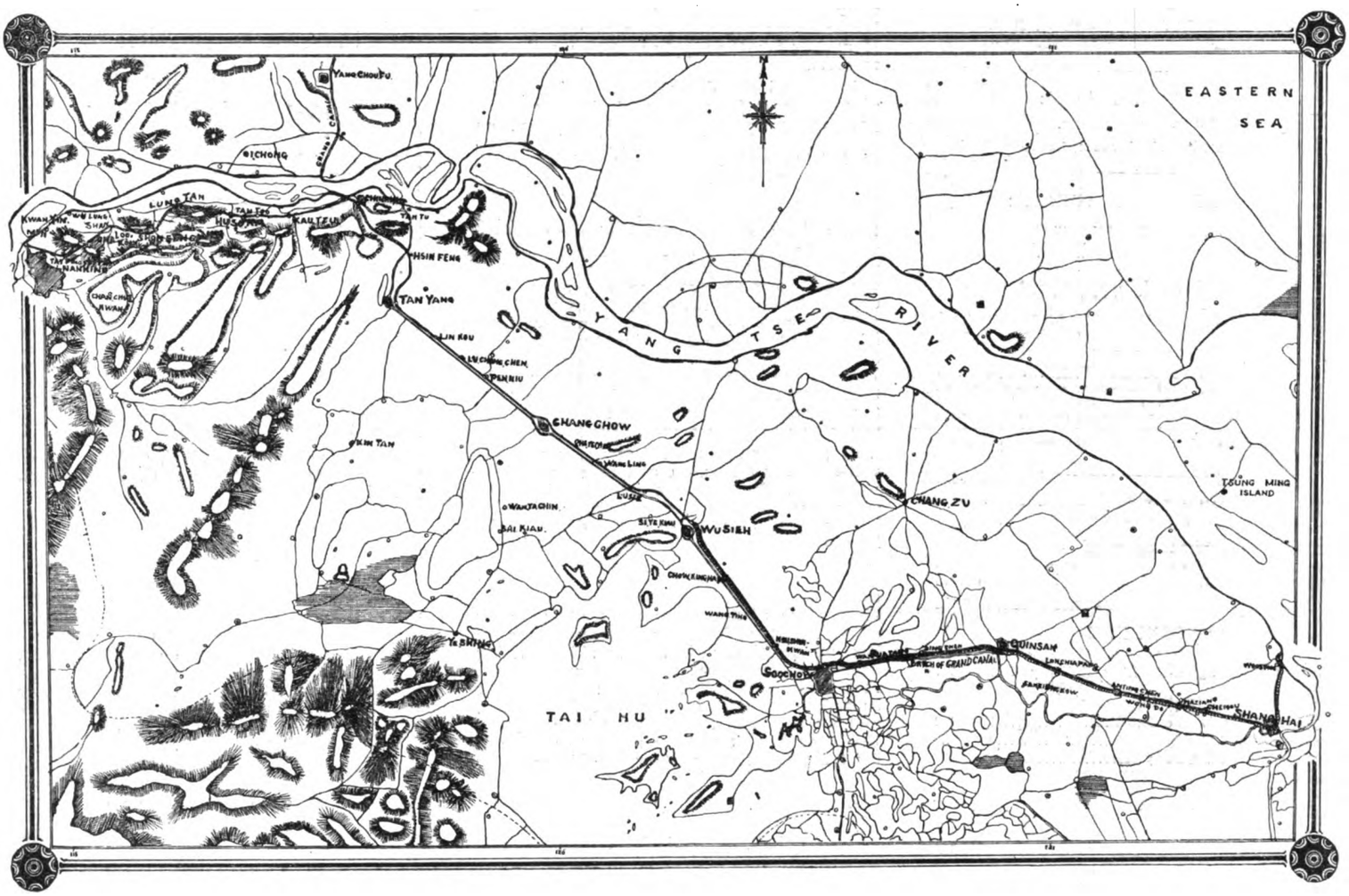
MAP OF FORMOSA, SHOWING COMPLETED RAILWAY SYSTEM.

THE FAR EASTERN REVIEW

COMMERCE • ENGINEERING • FINANCE

VOL. III. MANILA, P. I., SHANGHAI, AND YOKOHAMA, SEPTEMBER, 1906. No. 4.

SHANGHAI-SOOCHOW-WUSIEH SECTION OF THE SHANGHAI-NANKING RAILWAY SYSTEM



MAP OF THE SHANGHAI-NANKING RAILWAY

The second section of the Shanghai-Nanking Railway, comprising about 80 miles, is now in operation, and two passenger trains and several freights are running daily between Shanghai and Wusieh, which are the terminal points of this division. This railway is being constructed by the British and Chinese Corporation under concessionary grants from the Peking Government. The joint agency of the corporation is controlled by the well-known firm of Messrs. Jardine, Matheson & Co. and the Hongkong and Shanghai Banking Corporation, the former looking after affairs in connection with the construction and operation of the system, and the latter the financiering of the project.

An idea of the importance of this Railway may be gleaned from an extract from the address of Taotai Shen Tung Ho, of Shanghai, delivered at the ceremonies which attended the formal opening of this new section, which occurred in July. He reminded his hearers that the Province of Kiangsu, in which both Shanghai and Nanking are situated, has an area of 44,500 sq. ms. with a population of more than 38,000,000 people; so that, while the province is smaller than England in area, it possesses one-third more population. And as the line passes through the most fertile portion of the province its expectations may faintly be realized.

ENGINEERING FEATURES.—The road construction between Shanghai and Wusieh produced no particular engineering difficulties; it rather called for painstaking care. The surface is almost entirely of alluvial deposit with an underlying strata of silt, and the

(Continued on page 114)

manufacturers and financial institutions of the United States, which has resulted in attracting attention to the Philippines and other countries of the Far East. But yet, we feel as though all our labor is lost unless we can further educate American capitalists, and bring about a feeling which will force the Senate to grant us the one boon which will place us once for all on the road to prosperity.

With this end in view, we have gradually extended our sphere of influence in the East, to make our paper more valuable, and now we propose to open a permanent office in New York, where we can get into closer contact with our manufacturers and contribute our share in the campaign for developing the Islands. Our proprietor, Mr. Rea, expects to sail for the United States in the near future, to personally take charge of the new office, and lend his efforts to promoting the Islands in the financial center of the country, and cooperating with the Government and commercial bodies in bringing about a change of feeling concerning the Islands.

HEMP MACHINERY COMPETITION

Under the old Spanish régime, that government kept a standing reward of $100,000 for the person who would successfully invent and operate a hemp-stripping machine. The importance of such an apparatus for the economical treatment of our principal staple was thus early recognized, and as the demand for hemp became greater, the scarcity of labor compelled the employment of some mechanical means to offset this disadvantage. The crying need of the Islands is the invention of some machine which will develop our great natural resource, and so cheapen the product that it will obviate the use of the many inferior fibers, the demand for which is encouraged because of the backward state of the great industry nature has centered in these Islands. The prize to the successful inventor is a great one, as it means the rapid accumulation of a large fortune, and a place in the ranks of the world's great benefactors.

The inventive instinct of Americans has been brought into action to solve this problem, and from time to time since our occupation various individuals have perfected plans and patents of machines for this purpose. Several of these have already been built, and private experiments conducted at great expense to insure a perfect machine before offering it to the public.

Mr. Lindsay, Castle Bros-Wolf & Sons, M. A. Clarke, Mr. Solignac, Mr. Wheeler, Captain Leonard and other prominent commercial and professional men are at present interested in new hemp stripping machines, and now the Director of Agriculture has entered the field with a commercial machine, which was recently tested at the Government Experiment Station in Manila.

The race for public favor is a keen one, and the successful machine will soon command a large sale and great profits. In view of this condition the race should be clean cut, open, fair and equitable for all contestants, without the suggestion of official favor to any one machine. The natural impulse of trusting inventors is to seek such aid, information and sympathy as may be at the command of the Government through the natural channels of the Bureau of Agriculture, and their first endeavor, after the completion of such a machine, is to secure an official indorsement of its merits. Such an approval would be worth thousands of dollars to any firm in opening up the market and interesting the natives in buying the machines. Several such machines were officially tested by the Agricultural Bureau last year, and according to the report of the Bureau of Agriculture were failures.

Of course it is urged that the Government is absolutely impartial in these tests of machines and every inventor will be given a square deal, but human nature is so constructed that it will take a powerful lot of explanation to make the ordinary inventor believe that he will receive favorable consideration from a Bureau whose Director is interested in the sale of another type, or that the official machinery manufacturer will not use his position to further his own ends to the detriment of other less favored competitors.

There seems to be considerable grounds for this attitude on the part of the man in the street, for we find that the Director of Agriculture has already gone out of way to publicly criticise those types of machines not built according to his ideas and his patent, but which other men are struggling in the open field to have recognized, without the powerful prestige of the Government to uphold and push them towards success.

The last Report of the Bureau of Agriculture, under the head of hemp machinery, has the following statement: "By means of correspondence, and through the columns of the 'Scientific American' this subject has been brought to the attention of American inventors and manufacturers, with several of whom we are now in communication. To our local inventors we have offered every possible encouragement and assistance in the way of suggestion, raw material and facilities for testing machines."—"During the past half year two different machines have been officially tested by this bureau. The model of a third machine has been submitted for our inspection and the machine itself will be ready for use in a few weeks."

During all this time when the Bureau was in correspondence with American manufacturers and inventors, and giving suggestions to local inventors, inspecting models and passing on their merits officially, the head of the Bureau was quietly perfecting the plans for his own machine. And yet the Government cannot imagine why the business community doubts its sincerity and the purity of its officials. It might be urged with some justice that a Government official has a perfect right to exercise his inventive genius, or adapt an old principle to his machine, so long as the desired end was accomplished, but when, in his official capacity, he is receiving through his bureau the confidences of other inventors who look to him for that aid to which they are entitled, the ethics of the proceedings are not all that might be desired, and opposed to the best ideas of Government. When we add to this feature the fact that the official still retains his position where he can influence the sale of his machines to the detriment of others, there is just cause for complaint. We have other good men in Manila who hold to views quite the opposite to those advanced by the official and who are quietly spending money to perfect their ideas without any chance of publicity except through paid advertisements in the public press, but with the competition of the official inventor, it is being urged in official reports and signed newspaper articles that his idea alone is right and the others wrong. In his report as Director of Agriculture for last year, Mr. Wellborn goes out of his way to decry the light machines and indorse the type of machine he was then having patented, and again in the Anniversary Number of the *Daily Bulletin*, in an article over his signature he again points out the demerits of competing machines and calls attention to the superior qualities of the type he was soon to place on the market.

Mr. Solignac, a prominent lawyer of this town, has been working for some months to get his machine before the public, and there are others who feel that they can not expect a square deal in competition with an official who has the prestige of his position to push the sale of his patent, and now that his machine is actually on the ground and has been given an official test, it would only be fair to all parties concerned if the Director of Agriculture should meet the opposition on equal grounds.

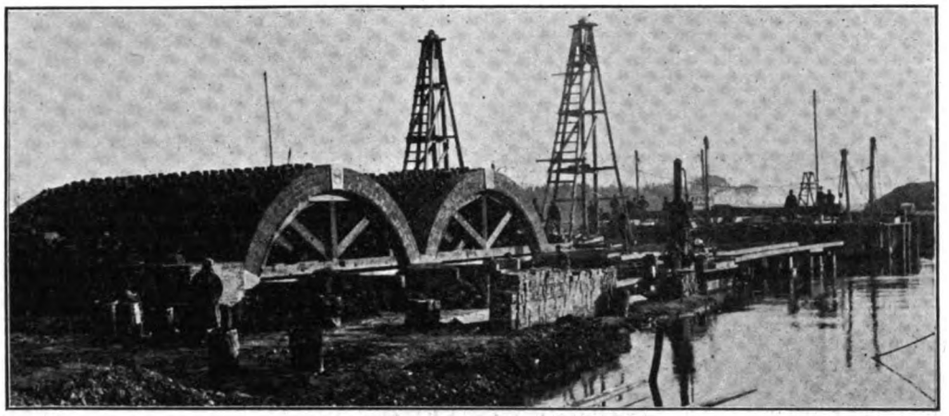
Without entering into a discussion of the ethical points involved, common fairness demands that Mr. Wellborn should resign his high position, and enter the commercial field on the same basis as the vendor of any other machinery, and leave the merits of his invention to be officially passed on by some one not financially interested. Otherwise the situation will remain unpleasant, and the government open to continual criticism. We believe no public official can legitimately hold office and at the same time be in a position to advance his private interests. The very semblance of such a state of affairs is sufficient to cause a scandal. The mere suggestion in Washington that some officials were interested in certain lands along the lines of the projected railways, was sufficient to call for an explanation which averted what threatened to result in a Senate investigation, and any similar raking of Philippine muck should be stopped at once.

MR. ELSER'S RETIREMENT

During the absence of the publisher of THE FAR EASTERN REVIEW in the United States, covering a period of about eight months, Mr. E. E. Elser, Assistant Manager of the well-known firm E. C. McCullough & Co., Inc., kindly performed the duties of Business Manager of this publication. Recently the business department of THE REVIEW was reorganized, Mr. Elser retiring. THE REVIEW wishes to publicly acknowledge the splendid service Mr. Elser rendered during his incumbency.

THE SHANGHAI-NANKING RAILWAY

Railway construction after modern engineering practice is splendidly exemplified in the work being done on this important line, which, when completed, will open up one of the finest agriculture districts in North China. While the line is being constructed under the nominal provisions of a British-Chinese concession, it is notable that the British interests have had almost exclusive control of the project both in the matter of financing and construction. The second section of the road, from Shanghai to Wu Sieh, was recently opened for traffic, and splendid trains are now being run regularly between these two points with a prospect of the operation of the entire line through to Nanking within another year. While these details are slightly aside from the engineering features of the project they lead up to the splendid work of construction which characterizes not only that part of the road now in operation, but that under way. Messrs. Jardine, Matheson & Co. have had exclusive control of this part of the work and have furnished all the materials. Under the able direction of Mr. Collison, the engineer-in-chief, the construction is all that could be desired. While up to the present time there have been few difficult engineering features to overcome, yet, when the fact is taken into consideration that railway construction in China is difficult under the simplest conditions, the manner in which the work is being carried on is noteworthy. The road work is equal in stability to any to be found in other parts of the world where such construction is within easy reach of the base of supplies, and the culvert and bridge work is second to none. The latter construction is exclusively reinforced concrete where that material can be used. The station houses are of substantial brick construction, and altogether the line has the appearance of permanency and stability. The cement used in this construction is the famous "Tongshan" brand manufactured by the Chinese Engineering and Mining Company, and has given eminent satisfaction. Altogether, the Chinese are to be congratulated upon the splendid railway that British engineering and financial enterprise is accomplishing for them in the Shanghai and Nanking line.



SHANGHAI-NANKING RAILWAY: BRIDGE ARCHES NORTH OF SOOCHOW

SHANGHAI-SOOCHOW-WUSIEH SECTION OF THE SHANGHAI-NANKING RAILWAY SYSTEM

(Continued from page 111)

route is through a country that is rich in agriculture and as level as a billiard table, figuratively speaking. The surface had to be carefully prepared for the roadbed, and finally a 2′ layer of ballast superimposed. The ballast is principally broken Soochow granite with a strain of limestone throughout, and the road has been built with all the care and solidity of a grand trunk line, and can not but furnish a most useful object-lesson to the Chinese for the lines they seem eager to construct for themselves in other parts of the empire. Aside from embankment, bridge and culvert construction on a small scale the laying of the tracks was uniformly uninterrupted, but it is understood that the engineering features of the construction from Wusieh to Nanking, *via* Chinkiang, are quite difficult, there being several heavy grades to overcome besides the boring of a tunnel something over 1500 yds. at Chinkiang which is giving the engineers considerable trouble on account of the frequent caving of the earth. The Shanghai-Wusieh section of the line was commenced about 15 mos. ago, and the whole railway is expected to be completed by the spring of 1908. Beyond Wusieh much of the construction is in an advanced stage and ground has been broken at intervals all the way up to Nanking, 193 ms. from Shanghai.

The line consists of long stretches almost perfectly straight. There are few gradients. The country is interspersed with numerous creeks and water courses, of which, between Shanghai and Soochow alone, there are 160.- Owing to the unstable soil foundations cofferdams had to be resorted to in a number of instances. One viaduct over Quinsan Creek is 400′ on brick piers and steel girders, with arch approaches.

A considerable difficulty is being dealt with in connection with the construction in the shape of the graves, which, to the number of many thousands, dot the entire route from one end of the line to the other. Each individual family has to be dealt with, a fresh burial site purchased or allotted, and the necessary rites and ceremonials carefully attended to in connection with the transfer of corpses. As may be imagined, this calls for no small display of tact and that it has thus far been achieved without a single instance of a riot is sufficient proof of the careful diplomacy of the officials to all who know the Chinese and his violent passions and superstitions towards their dead.

The line is at present but a single track through to Wusieh, although it is intended that it shall be doubled-tracked from Shanghai to Soochow in order to provide for the line from Soochow to Ningpo and Hangchow, for which the British and Chinese Corporation has a concession. With this in view the route for double tracks has already been laid out, all the bridges and culverts have been constructed to the full width, and everything is ready for the ballasting of the road and the laying of the rails. All arch bridges and culverts and the foundations of the few girder bridges throughout the entire system are being constructed of reinforced concrete.

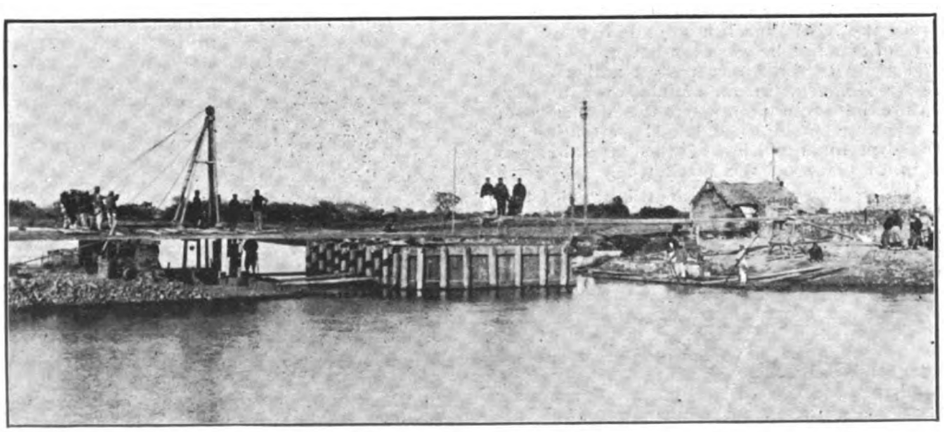
CONSTRUCTED UNDER BRITISH CONTROL.—The railway is being entirely constructed under British control, and the materials, equipment and machinery are also British or colonial. The ties are of Jarrah hardwood, a splendid structural timber furnished by Messrs. Jardine, Matheson & Co. from Australia. The steel rails are 80 lbs. and 36′ in length, and are being supplied by Messrs. Guest, Keen & Nettleford and by Cammell, Daird & Co.

ROLLING STOCK.—The passenger locomotives are the 4-wheel-coupled type, and were built by Robert Stevenson & Co. of Darlington. The boilers contain 214 tubes of 2″ diameter, with a working pressure of 180 lbs. to the sq. in. The cylinders are 18″ with 26″ stroke. The diameter of the coupled wheels on tread is 6′7″, the front of the engine is carried on 4-wheel bogeys and have a diameter of 3′ 6″. The tender capacity is 3,500 galls. of water and 7 tons of coal, and in working order the locomotives just scale 105 tons. The freight locomotives are of practically the same capacities, but with six coupled wheels 4′ 9″ on the tread.

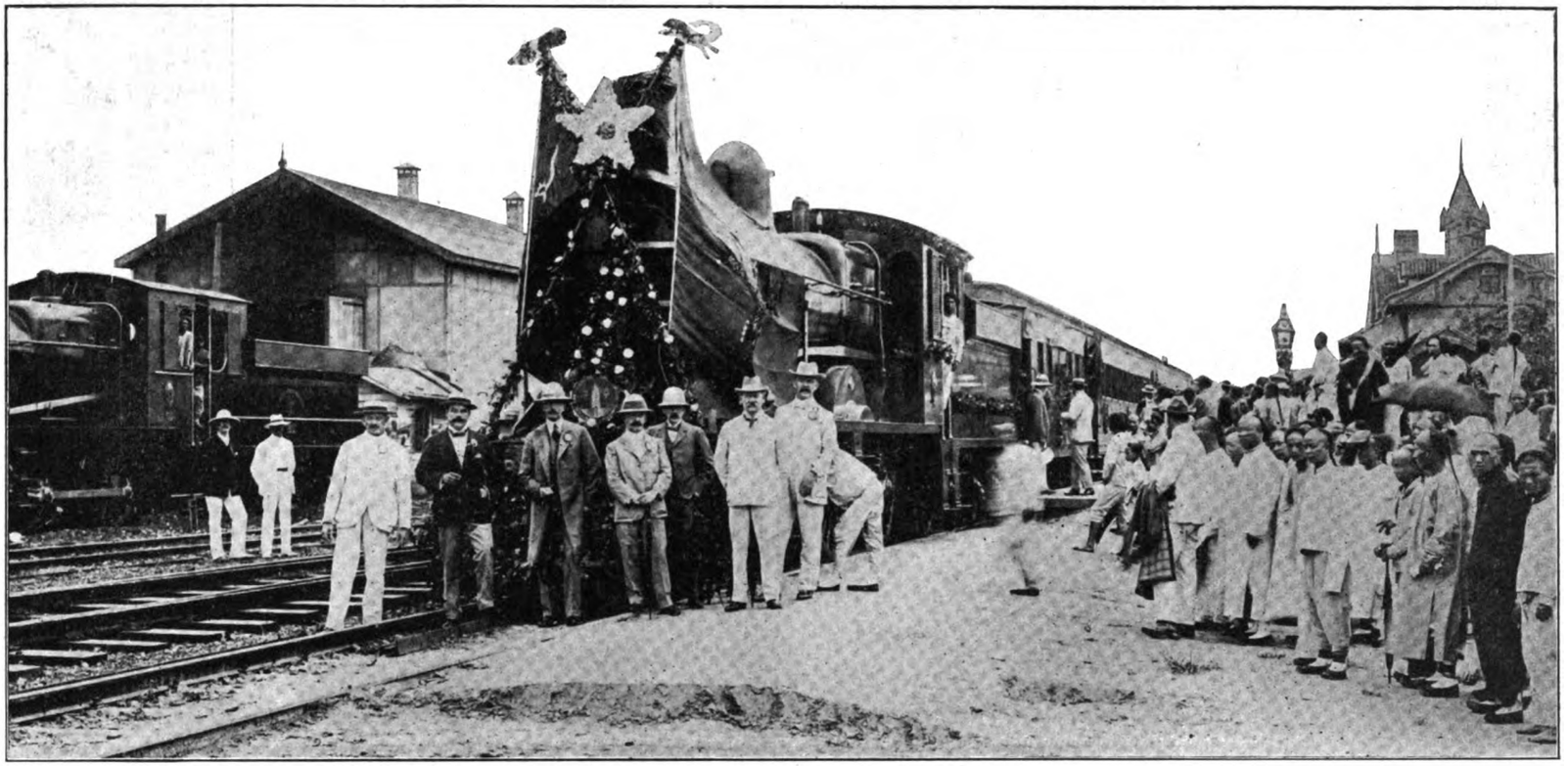
PASSENGER CARS.—The three classes of passenger cars are of the central-aisle type and accommodate 72 passengers in the 1st-class, 90 in the 2d-class, and 100 in the 3d-class. The coaches are divided by partitions, but are not composite. They are warmed with steam heat in the winter, but no extra provision is made for cooling in the summer beyond the ventilators in the roofs. The 1st-class coaches are comfortably upholstered and have a limited quantity of interior decoration. The new saloon coaches were expected to arrive in time for the inauguration of the Shanghai-Wusieh section, but the construction gangs got ahead of the home department. When they arrive they will be accompanied by handsome dining saloon cars 65′ long, together with kitchen cars, so that every convenience for refreshments for travelers will be provided. Sleeping cars will hardly be necessary, as Shanghai and Nanking will only be about 7 hrs. apart when trains are run through between these two points.

FARES ARE MODERATE.—The fares are extremely moderate—3d-class, 1 cent gold per mile; 2d-class, 1½ cent, and 1st-class, 3 cents. Even this low rate for the 3d-class may meet with a development, for it may occur to the officials that a 4th-class in the small hours of the morning, composed of freight cars, might be run to enable the small farmers to bring their daily produce to market. No doubt such an innovation would be well received and extensively patronized. The land being broken up into tiny holdings, the little farmer may be seen daily with his two huge baskets on the ends of his *bo*, on his way

SHANGHAI-NANKING RAILWAY: BRIDGE ARCHES UNDER CONSTRUCTION, SOUTH OF SOOCHOW

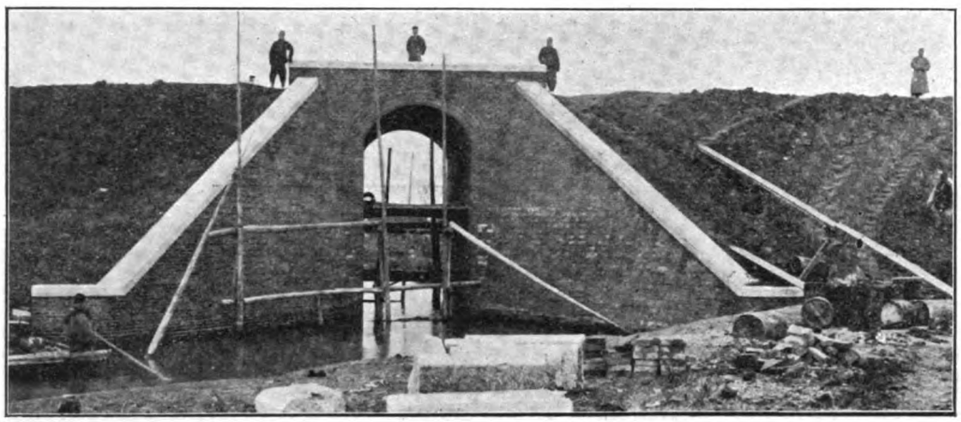


SHANGHAI-NANKING RAILWAY: CONSTRUCTING A COFFERDAM



OPENING OF THE SHANGHAI-NANKING RAILWAY

Locomotive "C 13" ready to start on the inaugural trip over the line from Shanghai. The gentlemen in front starting from the left are:—Mr. E. J. Dunstan, Locomotive Superintendent; Mr. A. H. Collinson, M. I. C. E., Engineer-in-Chief; Mr. Henry Keswick, of the British and Chinese Corporation, and Jardine, Matheson & Co.; Mr. J. D. Smart, of the Hongkong and Shanghai Banking Corporation; Mr. J. O. P. Bland, Secretary of the Shanghai Municipal Council; Sir Pelham L. Warren, K. C. M. G., British Consul General at Shanghai; and Mr. James McKie, of Messrs. Jardine, Matheson & Co.



SHANGHAI-NANKING RAILWAY: BRIDGE OVER A CREEK NEAR SOOCHOW

o the nearest market. This antiquated method of transportation is only feasible within a certain limited distance and probably the course suggested would meet with its reward in more ways than one.

FREIGHT CARS.—The freight cars are good, serviceable-looking constructions of the latest types. Those on steel 4-wheel bogeys have a capacity of 35 English tons. There are some smaller open 4-wheel cars carrying 18 tons, and a fine type of steel-covered car, also run on bogeys, with a carrying capacity of 30 tons.

The engineers and firemen are at present Europeans on all passenger trains, although natives are being trained and will supersede when they become practically efficient.

LABOR.—The laborers employed on the construction are entirely native, under British supervision. They have been drawn from all parts of the empire, and three and a small fraction may be taken as the equivalent of an English section hand. With wages, therefore, ranging from 15 cents gold for ordinary, and 25 cents for foremen and gangers, some idea of the comparative cost may be imagined. There have been no strikes thus far, and but few disputes. When it is remembered that two Chinese from 50 ms. apart can not speak the same dialect it says a good word for all parties concerned.

STATIONS.—The stations are on an average 6 ms. apart. They are built on one side of the line in the English fashion. The platforms are ballast-edged with stone coping, and are coach high. The offices and residences for the staff, who are all Chinese at the wayside stations, are handsome red and white brick structures of solid and comfortable appearance. It speaks well for the presumably peaceful intentions of the surrounding populace, and forms a considerable contrast to the stations on the Chinese Eastern Railway, each one with its fortified tower and wall. The platforms are long enough for any estimated traffic.

Shanghai station is awkwardly situated at a considerable distance from the center of the settlement. This is probably due to certain local causes at the conception of the enterprise, when the idea of any railway at all was far from being popular. It was also the terminus of the little line from Woosung, which was not a British concession. A more direct road than at present exists is in prospect, and possibly a branch of the electric railway will ultimately connect with it. The station has, however, ample sidings, engine houses, and sheds for cars. About ½ m. up the line an extensive locomotive roundhouse is in course of construction and at Markham-rd, about 1 m. out, ithe future freight depot is located. It has enormous sidings and stores, together with a magnificent wharf on Soochow Creek. This has been of the greatest use during the construction as by means of the creek the company's own lighters have been enabled to transport all sorts of machinery and materials to convenient spots, thus facilitating the construction simultaneously at various localities. Its immediate access to the river and sea will make this depot an ideal one. Probably, although there is no passenger station at present, the corporation will find it advisable to establish one at this point as it is less than a mile from the fashionable residential portion of Shanghai, and a road from it will tap the electric street railway line.

ENGINEERING STAFF.—The railway is being constructed under the supervision of the following engineering executive staff—A. H. Collinson, M. I. C. E., engineer-in-chief; A. C. Clear, Assoc. M. I. C. E., Soochow Division; F. Grove, M. I. C. E., Wusieh Division; J. G. Barkley, M. I. C. E., Chinkiang Division; M. R. Sinclair, M. I. C. E., Shanghai Division. Mr. Collinson is well known in connection with the Great Northern and London-Brighton systems of England and the Buenos Ayres Great Southern Railway in South America, and he was also employed for 10 yrs. on the construction of the Great Central Railway to London, from Annesley to Rugby.

JAPANESE CEMENT TRADE

Japanese cement, as an article for export, has not yet reached the status of the principal staple articles, its export being only half-a-million yen or thereabouts a year, but the "Chugai Shogyo" thinks there is no doubt, however, that the trade is on the eve of expansion, as the demand for Japanese cement will increase with the development of Korea, Manchuria, Russian territory and other Eastern countries. Nine years ago its export only amounted to 16,000 yen in value, but in 1903 it had increased to 590,000 yen. The war has put a temporary check to the growth of the industry, but with the restoration of peace a revival has taken place. Not only is the demand for Japanese cement springing up in Korea and Manchuria, but large orders received for San Francisco brought about since the earthquake and conflagration have given a great impetus to the cement industry in this country. All the stock in the market has been cleared and the cement companies are now busily engaged in manufacturing to meet requirements. The amount of cement exported during the last ten years is as follows:—

	Quantity. kin.	Value. Yen.
1896	2 322,644	25.372
1897	938,188	16,257
1898	2,108,686	36,955
1899	4,648,722	62,632
1900	15,088,419	194,469
1901	17,815.512	245,081
1902	22,840,563	308.349
1903	41,749.234	596,204
1904	39.085.471	548,497
1905	31,614 437	395,392

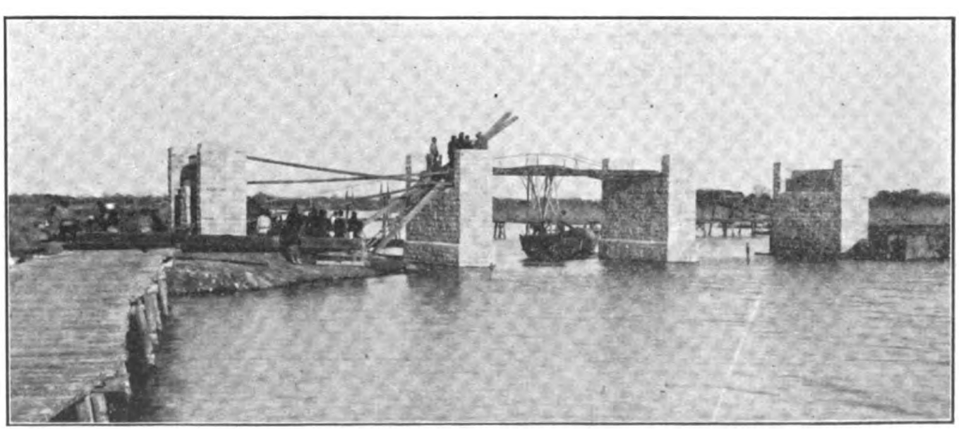
Up to the end of May this year the value of cement exported had reached over 423,000 yen, while the figures for the corresponding period of the two preceding years were 198,000 yen and 217,000 yen respectively. That is to say, the quantity exported during the first five months of this year exceeded that for the whole of last year. The principal countries to which cement was exported during the whole of 1905 and the first four months of this year are as under:—

	1905. kin.	1906. kin.
Korea	13,455,653	4,823.382
America	298,140	7.428,338
China	4 790,812	2,291,925
Manchuria	—	1,731,859
Dutch India	3,326	487,500
Russia	500	302,405
Philippines	4,133,287	300,080
Hongkong	988,440	90,000
Straits	60,000	56,000
Australia	28,728	28,728
Canada	7,755,771	—
Others	99,780	66,173

The remarkable increase in export to America that has taken place this year is doubtless owing to the unlooked-for event at San Francisco, while as to the gradual increase of export to Manchuria, Korea, and Asiatic Russia there seems to be little doubt. Next it will be interesting to review the amount of capital invested by the various cement companies and their annual producing capacity.

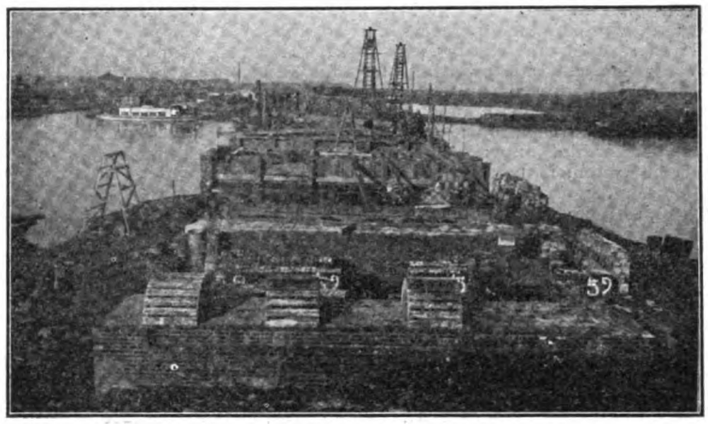
	Capital invested. Yen.	Producing capacity. Barrels.
Onoda	959,000	200,000
Osaka	333,000	90,000
Kyushu	280,000	30,000
Mikawa	110,100	40,000
Hokkaido	500,000	90,000
Nippon	510,000	90,000
Saga	341,000	50,000
Chuo	421,000	120,000
Aichi	403.000	120,000
Miye	168,000	30,000
Asano	800,000	200,000
Suzuki	110,000	40,000

Of these it is only the Aichi cement which made a dividend of over 10 per cent for



SHANGHAI-NANKING RAILWAY: BRIDGING THE GRAND CANAL

BRIDGING A CREEK NEAR WUSIEH



QUINSAN VIADUCT

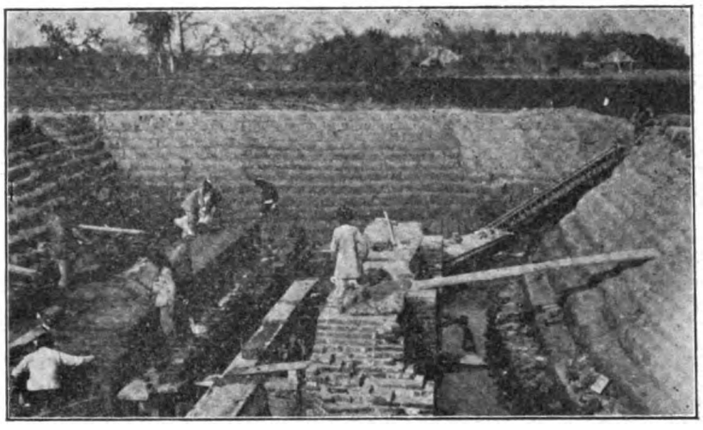
last year, while the majority had to content themselves with dividends of 5 per cent or less. In short, all the Japanese cement companies have hitherto been suffering under a disadvantage, but now a new stage of development seems to have opened up for the trade.

MACHINERY FOR MALAYA

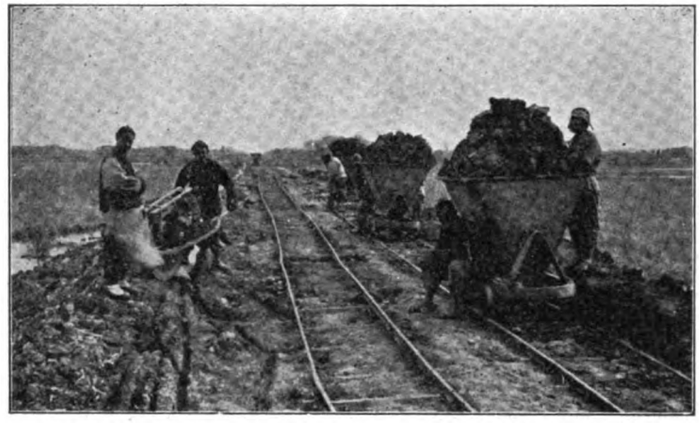
Writing to the *African World* Mr. Ralph Stokes of Tanjong Malin, Perak, says:—

Manufacturers of mining machinery would do well to take note of the growing requirements of the tin-mining industry of the Federated Malay States, which promises to rapidly develop into a valuable new field of business. In the past the producers of it—for the most part Chinamen—have employed large numbers of coolies, and utilized the simplest sluicing plant in their work, the pump and its engine often being the only items of mechanical equipment on their properties. Being also "towkays" or merchants, there has been method in this seeming madness, but, as in all mining fields robbed of their surface riches, the saving of the industry today depends on low-grade propositions, worked on a large basis and with labor-saving devices. At the present time several important schemes formulated on this principle are under weigh; if successful there will be a boom in highly mechanical systems, and even the conservative Chinaman will be prompted to negotiate with the makers of machinery rather than the recruiters of labor. At one property, named Tanjong Rambutan, a 16 in. suction dredge, constructed by the Austral-Otis Company, of Melbourne, is being installed to deal with a large body of low grade ore. At Redhills one may see a Bloudin conveyor, steam navvy, stamps, and new type of concentrating plant in course of erection. At Tronoh a new power installation is contemplated. At the Kampar property of the Société des Etains de Kinta a turbine to utilize a large fall of water will be at work early next year, generating up to 500 h. p.; and in many other sections of the country, Perak especially, engineering progress is manifest.

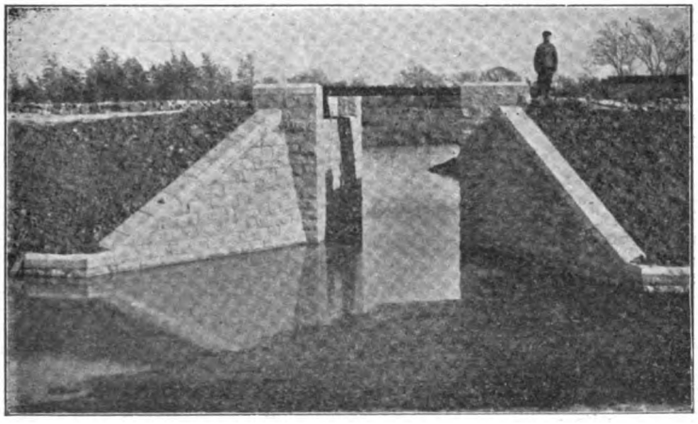
Mine labor is almost entirely Chinese; a fair percentage of Tamils are employed. The indolent Malay prefers fishing or grooming of horses. The cost of living has been greatly increased by the fixing of the dollar at 2s. 4d, and unskilled labor is not cheap, according to the Eastern Standard. The standard wage is 50 cents, or 1s. 2d., per day, with rice and accommodation. But the quality of the Chinese labor is exceptionally good. I have questioned many managers as to their views of this class of labor, and without a single exception they have told me that it is of the very best conceivable, and easy to handle. Those who have not been to South Africa refuse to acknowledge that the Kaffir can be a superior working factor. Those who do know the Rand—and several local engineers can be thus classified—affirm that the black assuredly is not a better workman. The China-



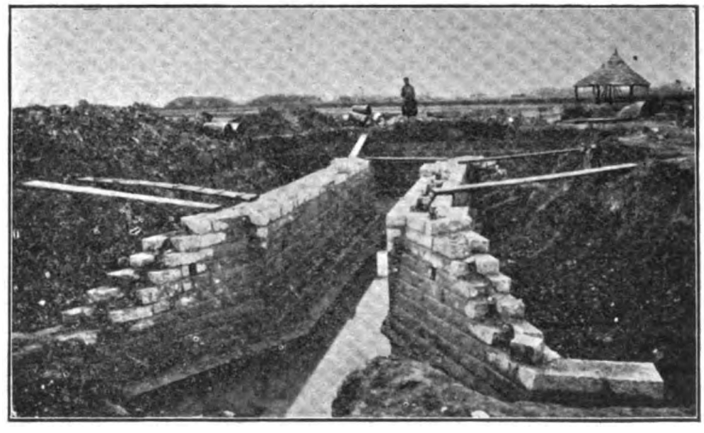
FOUNDATION FOR A CULVERT



CONSTRUCTION OF RAILWAY ACROSS A MARSH



TYPE OF CREEK BRIDGE



CULVERT UNDER CONSTRUCTION

THE KAIPING ENTERPRISES

The manager of the Chinese Engineering and Mining Co., Ltd., at Tientsin, recently invited the representatives of the Shanghai journals to visit the mines and works of that Company. The following description of the trip, appearing in the *North China Daily News*, is of such interest that we reproduce it in full.—Ed. F. E. R.

The Chinese Engineering and Mining Co., Ld., which has only been in existence for some five years, is attracting more and more attention in business and shipping circles as the great coal-producing agency of North-China. The Company possesses extensive and almost inexhaustible coal-fields in the Kaiping district of the Province of Chihli, near the Gulf of Pechili. The collieries are centred between the port of Tangku and the Company's own port of Chinwangtao. They are sixty-two miles east by rail from Tangku and seventy-three miles west by rail from Chinwangtao. The Imperial Railways of North-China bring them into close connection with Tientsin, and the Company has a canal of its own, about fifteen miles long. The situation of the collieries is, therefore, all that can be desired from the point of view of speedy and economical transport.

It must not be supposed, however, that the Company confines themselves to the mining of coal only. In addition they are manufacturers of coke, coal tar, bricks, cement, roofing and flooring tiles, water and drain pipes and lime. At the extensive workshops at Tongshan all kinds of iron work, machinery, and repairs for marine and land work are also undertaken, whilst at the collieries their thoroughly-equipped laboratory enables them to give reliable assays, to undertake analytical work, and to report on mining properties in the province of Chihli. Last but not least in importance for the successful working of this great undertaking, the Company possess an efficient fleet of steamers which are engaged chiefly in coal transport and partly in the general shipping and passenger trade in North-China.

That which, however, is of special interest to the general public is that the shortest sea route between Shanghai and Tientsin is viâ Chinwangtao. The unfortunate travellers (and they are many) who have been "stuck on the Bar" for a week or even longer will be able to appreciate the advantage of being able to travel from Shanghai to Peking (875 miles) in something less than seventy-two hours. The whole journey has, indeed, been accomplished in fifty-seven hours. The incoming steamers are timed to connect with the morning mail train which leaves Chinwangtao at eight o'clock. The steamer is generally in good time to catch this train, and it is on record that it has only on one occasion been too late to do so. The journey from Shanghai to Tientsin is independent of the uncertainty and delay due to the Bar attaching to the Tangku route. Visions of long delays, of "days of fuming and fretting," of cherished designs brought to nought and business matters hindered and delayed, all rise up; to be succeeded by a feeling of satisfaction that these are all things of the past which need never vex or trouble us again. Henceforth in comfort, and with the assurance that in all probability we shall reach our destination at the specified time, we may start on our journey to the great northern capital.

Chinwangtao is the natural distributing centre for the north-west part of the province of Chihli, and in the winter season, when the ports of Tangku and Tientsin are ice-bound, the whole import and export trade of the entire province passes through it. In the summer only the steamers of the Chinese Engineering and Mining Co. make use of Chinwangtao. Nevertheless, it has become a formidable rival for the enormous trade which formerly used to be wholly shipped through Tangku and Tientsin, by virtue of the advantages which it possesses over these ports in point of saving of time and handling of cargo. We have already mentioned how speedily and certainly Tientsin may be reached viâ Chinwangtao. By the other route when steamers, even of moderate draft, arrive at Taku Bar, the owners are compelled to lighter them, on account of general scarcity of water on the Bar, and then proceed up river to Tangku and Tientsin. This makes the length of the voyage viâ Taku to Tientsin to be most uncertain, a week or more not infrequently being required to accomplish it.

The land in the vicinity of the port of Chinwangtao belongs to the Company and a breakwater and pier have been erected. The berthing accommodation is sufficient for half-a-dozen good-sized vessels, with a number of smaller ones in addition. The pier has also berths for two ordinary coasting steamers. A branch line of railway, connecting with the main line of the Imperial Railways of North China running from Peking to Newchwang, has also been laid down. Tangko station being three or four miles distant from the harbour works. This branch line leads down to the steamers' berths at the breakwater and pier and connects by a loop line with the Company's godowns and coal yards. By these arrangements passengers are enabled to step from the ship into the railway car.

The above-mentioned advantages and facilities afforded by the route to Tientsin viâ Chinwangtao, not being as well known as they ought to be, induced the Chinese Engineering and Mining Co. to make arrangements for a special trip for representatives of the Shanghai Press. The Company's fleet is not a large one but just about a year ago they added a very fine steamer, the Kaiping, one of the largest on the coast of China. This magnificent vessel is commanded by Capt. Macfarlane, late of the Hsiping, who brought her out from home, and who, in conjunction with Mr. Joseph Blackett, the well-known naval architect in London and superintendent engineer for the owners, supervised the construction of the vessel. It was on this ship that the representatives of the Press travelled on their tour of inspection, and a few particulars in reference to her dimensions and accommodation may prove of interest to those who will probably travel on her in the near future. That many will do so, especially during the winter season, there can be no doubt, her accommodation for both foreign and native passengers being so excellent that she is certain to be well patronized. Her length over all is 312 feet, gross tonnage, 2,546, net tonnage 1,605, and she carries a load of 3,543 tons on a draught of 19 feet 4 inches, steaming at the rate of 13 knots per hour. Her indicated horse-power is 2,700. If not particularly beautiful in appearance, she yet impresses one with the idea of solidity and comfort. Her engines consist of a set of triple-expansion engines, steam being supplied by two large single-ended boilers, working at 180 lbs. pressure. Six powerful steam winches are fitted, there is steam steering-gear amidships, hand screw gear aft, patent direct steam windlass, large donkey boiler, strong derrick gear, and an electric light installation, including lamps in the hold and on deck to enable goods to be loaded and discharged during the night. The boilers are fitted with Howden's system of forced draught, and See's patent ash ejectors are used. These ejectors are similar to those being fitted to the new express Cunarder, the Mauritania, now in course of construction by the builders of the Kaiping.

In the central deck-house forward is the captain's saloon, and just aft of this is the ladies' lounge and the entrance staircase of the saloon, one noticeable feature of which is its height—eight feet from floor to ceiling. All the decks, indeed, are of unusual height and the alleyways are lofty and airy. There are nine state-rooms in all, accommodating twenty passengers, each one being fitted with electric fan and light. The excellently fitted lavatories and bathrooms adjoining leave nothing to be desired. There is also accommodation for thirty first-class and the same number of second-class Chinese passengers. On the bridge deck is a commodious wheel-house; on this deck there is also a Kelvin's compass with the latest modern improvements, probably the only one of its kind on the coast. There are four large life-boats and aft are gig and pinnace.

It was, as we have said, to this well-equipped and comfortable steamer that the small launch of the same name as the vessel brought the little company of representatives of the Press on the evening of the 6th instant. She lay at the Company's wharf distant about three miles from Shanghai, and on arrival Mr. Frischling, the Company's Marine Superintendent, was soon at hand to impart any information required. At 5 a. m. the next day the vessel started and experiencing delightful weather the whole way we arrived at Chinwangtao at 5.30 a.m. on the 9th, thus having made the journey of 635 miles in 48½ hours. The same journey was accomplished last December in 48 hours 15 minutes, which is at the rate of about 13.2 knots per hour. The extra quarter-of-an-hour required for the present voyage was due to the hindrance occasioned by the new regulations of the Huangpu Conservancy Board; at least this is the explanation given by the captain. Chinwangtao has very appropriately been called "the open door to Peking," the distance by sea from Shanghai to the capital being about forty miles less than the route viâ Tangku, to say nothing of the certainty of being able to arrive at the specified time by the shorter way. Holiday-makers who are seeking rest and recuperation at Peitaiho, the delightful summer resort of North China, will find it economical and very much more expeditious to go there viâ Chinwangtao rather than by the former route viâ Tientsin. The Peitaiho station is only about sixteen miles from Chinwangtao. Chinwangtao itself (to which the first vessel, the Peiping, went in the winter of 1896, before there was any pier or breakwater), as a seaside resort or sanatorium has few places to equal it and it is certain to become a favorite summer resort now that such quick and easy access to it can be had. A beautiful sandy beach, dry and bracing climate and a magnificent view, are some of the principal attractions which are to be found there. Arrangements, too, have recently been made between the Chinese Engineering and Mining Company and the Hamburg-America line for a joint tariff with interchangeable tickets for use on the steamers of the two companies between Shanghai and Tientsin. It will be possible, therefore, for passengers to make the fast journey viâ Chinwangtao, and return for variation by way of Chefoo and Tsingtao or vice versa. Another change which will no doubt be appreciated is the quotation of the fares in dollars instead of in taels as heretofore.

The day before our arrival at Chinwangtao a French fleet of three gunboats and four torpedo boats had arrived and French soldiers were in evidence everywhere. The barracks accommodating the soldiers of four or five different nationalities were visible from the ship and the "Admiralty Pier," built as a temporary structure by the British in 1900 to land troops and stores, but afterwards made into a permanent one at the expense of the various nations concerned, is a conspicuous object in the distance, whilst here and there substantial-looking buildings, the residences of those connected with the Company, are seen. The French admiral was traveling to Tientsin on the same train and a body of Chinese soldiers was drawn up to salute him at Tangho. A diminutive Japanese soldier, taking keen notice of everything that was happening, was very much in evidence,

and we were informed that one such was present on the arrival and departure of every train, but for what purpose did not appear to be very clear to anyone.

After a very pleasant run of 162 miles in the luxuriously-fitted train, we arrived at Tientsin soon after 3 p. m. The first half of the journey as far as Tongshan, where the Company's coal mines are situated, is through pleasant hilly country, one feature of which is the number of walnut trees, but after Tongshan is passed the country is very flat and uninteresting—quite desert in fact. The soil is so salt and so frequently under water that no cultivation of it is possible. It is, therefore, with a feeling of relief that the city of Tientsin is seen in the distance. Arriving there a short carriage drive through the French and English Concessions brought us to the Astor House. In the evening we were entertained to dinner by Major Nathan, brother of Sir Matthew Nathan, Governor of Hongkong, and General Manager and Agent of the Company. It was under Major Nathan's hospitable roof that we had an opportunity of meeting our confrères in the journalistic world who live in Tientsin.

It had been arranged to delay the departure of the Kaiping for one day, in order to permit any of the party who felt disposed to do so to go to Peking. The journey of some eighty miles was made in a little over three hours. The country was much more picturesque and interesting than that between Tientsin and Tongshan. The Grand Hotel des Wagons-Lits at Peking, just inside the Chien Men and close to the railway station, leaves nothing to be desired in the way of accommodation, and one would willingly have spent a much longer time in visiting the famous places in the great northern capital. But at eight o'clock in the morning, punctually (and in China, too) we were speeding on our way to Tongshan, distant about 160 miles. The short stay at Tientsin *en route* enabled us to make the acquaintance of Mr. Foley, the genial General Manager of the railway, who, with Major Nathan and other friends, was on the platform awaiting the arrival of the train.

Tongshan, where are to be found the collieries of the Chinese Engineering and Mining Co., is situated at about an equal distance between Chinwangtao and Tientsin. A descent into these coal mines, among the largest in the world, if not exactly a pleasant experience, is certainly one of a most interesting nature. And the unsparing efforts put forth by Mr. N. Paquet, the Engineer-in-Chief, Mr. Knauer, the Engineer-in-Charge, and Mr. Ley, Mr. Paquet's Secretary, left nothing to be desired. The mines have been worked by the Chinese for centuries, but only superficially, as they lacked the proper machinery and requisites for developing them. The late Viceroy Li Hungchang, in 1878, took great interest in these mines, but it was not until 1901, just after the Boxer troubles, when the colliery passed into the possession of the Chinese Engineering Mining Co., that any steps adequate to the requirements of such an important enterprise were taken. Now they have developed to such an extent that the output of coal per day is fully 3,000 tons and more than 3,500 men are employed in the mines at Tongshan, working in three shifts of eight hours each. In addition to the principal mine at Tongshan, there is another at Linsi, distant about thirteen miles, the nearest railway station being Kuyeh. About 2,000 men are employed here. This mine promises in the not very distant future to become the most important of all, the mining operations being easier than at Tongshan. At the Northwest shaft about one mile from Tongshan, 600 men are employed. The coal produced by the Company is extensively used over the whole of the coast of China, and is quickly supplanting the native product used in the interior on account of cheapness. It is also used on all the railways of North China. It seems, moreover, that the demand for it is greater than the supply.

The collieries present a scene of great activity and bustle and everywhere evidence is seen of a vast and growing concern. There are about 750 men at work in the various workshops above ground. These workshops have been reorganized and extended. Modern and efficient plant for turning out all kinds of iron work, machinery and repairs, in an expeditious and workmanlike manner have been fitted. The workshops are under the constant supervision of skilled and experienced European engineers. There is a fitting shop, a boiler-maker's shop, a blacksmith's shop, and a foundry. The Engineer-in-Chief is now engaged in the fixing of a huge electric plant, 21 boilers of 30 tons each (nine at Tongshan and twelve at Linsi) for power and lighting purposes. Four of these boilers have already arrived. The tour of these workshops under the guidance of the Engineer-in-Chief proved to be both pleasant and instructive. The presence of this great colliery has brought a good deal of money to the people, and the little village of Tong-shan, through which we passed from the train *en route* to the coal mines in Peking mule carts, had quite a prosperous appearance. The miners all seemed to be enjoying the luscious melons, to which, perhaps, a peculiarly acceptable flavour had been imparted by their grimy fingers.

The mail train from Peking had had two extra cars attached to provide sleeping accommodation for the party, as it was feared that the resources of the foreign staff of the Company would not be equal to the occasion. Such fears, however, were groundless, as the whole of the party were speedily taken possession of and hospitably entertained.

We were awakened the day after our arrival by the colliery steam whistle at five o'clock. This whistle is used to call the miners, many of whom work in their fields distance from the mine, to get ready some to descend at six o'clock. It was not until considerably after nine o'clock, however, that we were actually on our way to make the descent.

Having divested ourselves of our ordinary garments, we proceeded to don the suits provided for us of which, perhaps, from an æsthetic point of view, the less said the better. They were certainly unsightly and not exactly good fits, but they were just as certainly what were requisite for the work to be done. Thus attired we entered the cage and commenced the descent of No. 1 shaft which is 600 feet deep. It usually occupies but a very few seconds to reach the bottom, but on this occasion, by reason of our inexperience, the speed was considerately slackened. In due time we reached our destination, and found ourselves in a world altogether unfamiliar to us. It was gratifying to learn that no accident of any very great importance had ever taken place in the mine. Lives had been lost, it is true, and men had been injured from time to time, but in most cases these were due to the characteristic indifference of the Chinese miners and their carelessness in neglecting to avail themselves of the safeguards provided for them. On one occasion a miner in the cage, not making use of the safety belt, fell a distance of six hundred feet and was dashed to pieces. Miners have lost their lives also through their failure to make use of the "props" provided to hinder the coal from falling and crushing them. But, as we have said, the mine has been exceptionally free from serious accidents. There are several Belgian miners employed in the mine, from whom we learned that as compared with those in Belgium there was more water in this one. Certainly one is impressed with the great quantity of water that is being ceaselessly brought to the surface by the huge pumps, and wonders whether the quantity is not greater than that found in many mines in other parts of the world. The electric installation which is to be completed in October next will facilitate a great deal the pumping of water from the mine, and so remove that which is at present a hindrance to the work.

The Tongshan mine is about two miles long from east to west and extends, perhaps, one thousand feet north. There are thirteen seams of coal, which, if one may judge from the No. 9. seam which was visited, are very rich. We understand that the galleries are wider than is usually the case in Belgian mines, which gives greater freedom to the miners and enables them to carry on their work with less danger than would otherwise be the case. We found, with here and there an exception, that there was an abundance of fresh air in the mine and little or no inconvenience was caused by the high temperature. The scene was a weird one as we slowly wended our way through the seemingly interminable galleries, under the leadership of an experienced Welsh miner. Through slush, with the water trickling down the sides of the mine or dripping from the roof, which in some places was so low as to make it impossible to walk in an upright position, we plodded on, carrying our Davy lamps. Every now and then we had to keep close to the sides as the rattling noise warned us that a mule dragging three or four coal cars was approaching. The Chinese miners presented a weird sight as they gradually came in view emerging from the gloom, crouching in the cars. There are about 250 mules underground where they remain until sickness necessitates their being brought to the surface. There are in addition, another 200 mules employed outside the mine. A visit to the underground stables showed that every care was taken of these useful animals. One very interesting object in the No. 3 level visited by us was the main pump (Moore's patent) which pumps the water brought up from No. 6 level, which is 500 feet deeper and conveys it to the surface of the mine. It was generally agreed, after about one hour had been spent in the mine, that a return to the outer world was desirable and the first glimpse of the light of day as we gradually neared the mouth of the pit was a very welcome sight. Begrimed and perspiring we stepped from the cage, well satisfied that we had ventured down the mine, but still more satisfied that our experience was a thing of the past.

We have already said that coal mining is only one branch of the Company's great enterprise, and it is to be regretted that there was not sufficient time to look more closely into what is being done in other directions. Between forty and fifty Europeans are employed at Tongshan. There is a Club and a race course, as well as other indications of advancing civilization and progress, and as the mine develops and the number of foreigners increases, the place promises in the near future to become an important one. The surrounding country is pretty enough, although, of course, the dusty and grimy appearance inseparable from coal-mining districts is to be found here also in the immediate vicinity of the mine.

Both at Tongshan and at Chinwangtao ovens have been installed for the production of coke, which, as the coal is bituminous, is of very good quality. The brickfields are capable of turning out about one million square firebricks per month, the fireclay obtained in the district being of very good quality. There are also large cement works, the raw products used in its manufacture being found in unlimited quantities in the vicinity of the works. A private telegraph service has been established between Tientsin and Chinwangtao, and arrangements have been made with the Chinese Telegraph Company of Tientsin to transmit messages received over the Company's lines for the special benefit of travellers who pass through Chinwangtao.

It affords us great pleasure, in conclusion, to acknowledge the kind courtesy and consideration we received from all connected with the Company with whom we were brought into contact. No efforts were spared to make the trip a delightful and enjoyable one, and public recognition of the fact is only what is due to the Company. The reception accorded the representatives on their return, when they gave expression to these feelings, must have been gratifying to those present who had made the arrangements for the trip and through whose forethought and efforts it was so successfully carried out.

CHINKIANG INDUSTRIES

The commissioner of customs at Chinkiang, in his report on the return of trade for that port for the year 1905, says:

"The year's trade, measured by its net value, falls but a trifle short of its predecessor, and may be considered one of average prosperity. Commerce as a whole was moderately profitable, though the Cantonese merchants complain of a bad year, largely owing to stringency of money through overspeculation in the south. Crops were fairly good, and agriculturists were enabled to realize a sound profit by the removal of the restriction on the export of grain.

"Work was begun on the new Shanghai-Nanking railway in the early spring, and a large number of coolies were brought down from Shantung as laborers. On September 1, 1905, the first sod of a tunnel 1,700 feet long, under Pao-kai-shan, a hill on the border of the British concesssion, was cut by the Chinkiang Taotai, in the presence of the principal local officials and members of the foreign community, and considerable progress has been made in the construction of the line.

"A scheme for bunding and reclaiming the large area of silted foreshore of the river was made public early in the year, with the approval of the viceroy, the levy of wharfage dues being an essential element of the proposal.

"In October electric light was introduced into the extensive Chinese suburb between the British concession and the city. The credit of its introduction is due to the enterprise of a remarkable individual, Mr. Chang Chieng, a native of Tungchow, in this district, who having, when in humble circumstances, won the highest and most coveted literary rank of chuangyuan, or optimus, in the palace examination, has employed the influence so acquired in promoting the manufacturing industries of his native town and vicinity. He is an ardent supporter of the principle that China can and should manufacture for herself the fabrics now imported in such enormous quantities from abroad, and, having no capital of his own, he has had the ability to convince men of high position and wealth to entrust him with means of putting his views into practice. The extent of his enterprise may be judged from what follows:

MANY MODERN FACTORIES.

"At Tang-chia cha, a suburb of Tungchow, with water communication to the Yangtse, there are already established and at work a cotton mill of over 40,000 spindles for fine yarn, with English machinery, employing 2,500 hands, and capable of turning out 30,000 bales annually, for which a good market is said to be found locally. In the other mills there is machinery of German, American, Japanese, and some of Chinese make. There is a mill for extracting oil from cotton seed, the waste product of which also finds a good market as a fertilizer; a flour mill with a capacity of 7,500,000 pounds annually; a dyeing factory for cotton and silk fabrics; a factory for spinning and weaving silk; a canning factory for meat, fish, etc., and what will eventually be a dockyard for building steam launches and their machinery, but has at present only the plant for boiler making. Just outside of Tungchow there is a printing establishment for books and maps. In the vicinity is also a soap factory. On the island of Tsungming, on the Yangtse, under the same management, there is a cotton mill and a large brick factory, the latter at present employed in supplying bricks for the numerous buildings still in course of erection.

In addition to these 11 establishments 19 more are projected or in course of erection; among them a cotton-weaving factory is already sufficiently advanced to admit of the instruction of mill hands who will later carry on the work. All the factories are well built, worked by steam power, and lighted by electricity. Mr. Chang has also an interest in the Chinkiang flour mill, which produces a brown flour pronounced by a foreign analyst pure and nutritious, and which, as I have found, makes excellent bread. The produce of the Tungchow mill is of like quality. Old-fashioned millstones, turned by steam power, are now used, but steel rollers are to be introduced. I am informed by a Chinese gentleman, who is well acquainted with all the above enterprise, that their textile fabrics are not equal to those of European, American, or of Japanese mills, but that they are cheap and find a ready market among the Chinese. It is expected that the quality of the manufactures will improve with the growth of experience and skill.

"The waterways, which spread net-like over the surrounding country, are for the most part navigable by small launches, of which Mr. Chang has half a dozen, and he has already done something to facilitate their movements by the building of a fine quay of some 1,500 feet at Tangchiacha. He has also constructed a bridge there 200 feet long over the Liho; is making lock gates on the creek between Tangchiacha and the Yangtse, otherwise rendered impassable by difference of level, and he has acquired a dredger wherewith to deepen the numerous shallows in the canals. He will shortly have two small steamers running on the Yangtse between Tungchow and Nanking."

YALU VALLEY TIMBER DEVELOPMENT

Consul-General J. E. Jones, of Dalny, writes as follows concerning the concession given in the treaty between Japan and China for the formation of the Japan-China Timber Company for exploitation of timber in the Yalu Valley:

"A short time ago two Japanese timber experts visited the locality and made a careful estimate of the available supply and probable cost of handling. One of the details of the enterprise is the rafting of the timber, and their estimate of the probable cost of a raft of 500 trees is $183 for labor of felling trees and making raft, $76 for sustenance of laborers employed, $13.50 for 3 raftmen, $40 for 10 carriers, $24.50 for sustenance of raftment and carriers, $30 for hire of 1 ox, $73 as recompense to contractors 20 per cent of expenses. The selling price of raft is figured at $660, leaving a net profit of $220 or a total profit on 3,000 rafts per annum of $660,000. The business expenses are set down at $54,400 and establishment expenses at $159,000. This report is submitted as bearing upon the general idea that, so far as possible, it is the purpose of both Japan and China to control the enterprises in Manchuria, to the exclusion of the foreigner."

CHINESE RAILWAYS

NEW FUKIEN LINE.

Harry L. Paddock, the new consul at Amoy, makes his first report, stating that the long-projected Fukien Railway is at last becoming an assured fact. He writes:

This Fukien Railway will penetrate both the northern and southern parts of this province and will extend about 1,000 miles. Land is being acquired at various points along the proposed route and work will be commenced here. The Amoy terminus will be located on the mainland known as Sung Su, which faces the city and is about 1½ miles distant and about 1 mile from the international settlement of Kulangsu. This line will be built to Changchew, whence a southern line will be built through Chao Chow and on until it connects with the Kuang Tung Railway; from Changchew a norther line will be built through Chuan Chew and Hsing Hua to Foochow. From Foochow the road will further be extended to Yen-ping, whence one branch will be built to Kien-ning and another to Shao-wu, in order to connect with the Chekiang and Kiangsi railways, respectively.

This is the present proposed line of railway and indications would go to show that immediate steps are to be taken to consummate the plan. At least the line between Amoy and Changchew has been decided upon and work is to commence immediately under Mr. Chen, commissioner of railroads for this Province. The rivalry between France and Japan for the control of the new railroad is decidedly marked, and the rolling stock and railroad supplies will no doubt be furnished either by French or Japanese firms. There is an opening for American railroad engineers in this Province, provided prompt action is taken, but at present French control is decidedly marked. Whether American supplies can be introduced at this late date or not is a matter more or less problematical so far as this particular line is concerned, but it is at least worth trying.

Improvement in the methods of travel is one of the results of the present progressive movements in China, and railways are being projected in many quarters. At present the only engineers in this port are either Japanese or French, who are on the ground and consequently in a position to control the railway movement. If American firms intend to avail themselves of this opening market, it would be advisable to have some energetic representatives on the field at an early date.

SOUTH MANCHURIAN LINE.

Plans to guarantee construction.

Consul-General John E. Jones, of Dalny, reports that during the consideration of the subject of financing the South Manchurian Railway a proposition was made for the Japanese Government to guarantee the interest upon the investment for a period ranging from three to five years.

This, it was urged by the supporters of the measure, would be an additional incentive to investors and expedite improvement of the road. It is stated in Tokyo now that the Government will not guarantee any interest, and that the method adopted will be this: A valuation will be made of the line as at present constructed, as well as the appurtenances thereto and the mines along the road. The sum total of these will represent the Government's interest in the road. Following this, a committee of railway experts will carefully estimate the amount necessary for improvements, which will include the new construction incident to a change of gauge, additional rolling stock, depots, etc., and for this amount the general public both of Japan and China, as well as the Governments of each, will be asked to subscribe. This will represent the general capital of the road.

It is then proposed to have the auditing committee go over the accounts of the road at stated intervals and whatever net profits remain will be applied to paying a 6 per cent interest on the general capital only. The Government stands aside, in other words, until the shareholders are paid, and then if there is any surplus it participates in the remainder. Thus it appears that shareholders in the new South Manchurian Railway will be "preferential shareholders" and that they will be virtually guaranteed a 6 per cent return.

KEYSTONE DRILLER CO.

We invite the attention of our Eastern engineering firms to the advertisement of the Keystone Driller Co. of Beaver Falls, Pa., U. S. A. This firm is one of the best known manufacturers of drilling machinery in the world and is desirous of placing two or three agencies in this field.

THE PIONEER ROLL PAPER CO.

This enterprising company of Los Angeles, California, which has forged to the front as manufacturers of prepared and ready roofing, is reaching out for the Oriental trade. Mr. H. U. Robbins, their special representative, is now in the East, and will visit all the ports in China and Japan, and afterwards Manila. Interested parties wishing prices, samples, and other information, can address Mr. Robbins, care of the FAR EASTERN REVIEW, Manila.

CANTON BUILDINGS.—Work on the pile foundation for Messrs. Arnhold, Karberg and Co.'s new building on Front Avenue is being pushed ahead.

The old two story building, used since 1879, has been removed to give place to the new structure. This building is to be a six-story reinforced concrete structure with up-to-date appliances, such as elevators, sanitary fittings, etc. The exterior walls are to be faced with ornamental brick and granite.

The ground floor is to be used as a godown and machine display room, while the floors above will be used by the firm for office and residential purposes. A roof garden will be a feature of this place while the back portion of the roof will be used for servants' quarters, kitchen stores, etc.

CUSTOM HOUSE.—The I. M. Customs buildings, one for the indoor staff and the other for the outdoor staff, are well under way. These buildings are of a very substantial character, and will add much to the architectural beauty of Shameen. In fact, the former building will cover more ground area than any other single building on Shameen, and with the single exception of Messrs. Arnhold, Karberg and Co.'s new Hong will be the largest Shameen building. It will be handsomely finished in hardwoods, and will be of brick, steel and concrete construction.

The building upon completion will be occupied by married assistants of the Customs, on the Western side; and unmarried assistants on the Eastern side, together with the entire third floor, and the completion is being looked forward to by them with considerable pleasure.

Our local architects, Messrs. Purnell and Paget, have these three buildings in hand, and we are sure these will add still further to the many landmarks in Canton of this firm.—*S. C. Morning Post.*

FEDERATED MALAY STATES RAILWAYS.—1. Tenders are invited for the supply only of the Iron and Steel work in connection with a dome, etc., for the tower of the Terminus Building in Penang.

2. The General Condition of Contract, Specifications, drawing and forms of tender and agreements may be seen and all other particulars may be had at the office of the General Manager for Railways, Kuala Lumpur, Divisional Engineer, North, Taiping, and the Foreman, Terminus Building, Penang.

3. Tenders must be upon official forms and delivered in sealed covers addressed to the General Manager for Railways, Kuala Lumpur, and marked "Tender for Steel Work for Tower," on or before the 3rd September, 1906.

4. The Government does not bind itself to accept the lowest or any tender.

BUILDINGS, TSINGTAU.—An official report, states that during last year active building operations were carried out at the port of Tsingtau. 54 European residences, 26 mercantile buildings including a soap factory and three steam kilns, 12 godowns, and 11 Chinese residential and business houses were erected.

NEW CLUB HOUSE, TIENTSIN.—The New German Club house in Wilhelm Strasse is fast approaching completion. The heavy stone fronting and interior ironwork have been most judiciously utilized for solidity and strength, without producing the effect of over-massiveness.

NEW CATHEDRAL, RANGOON.—The Consulting Architect to the Government of India has given high and deserved praise to the work on the new Roman Catholic Cathedral, Rangoon, which he thinks the finest masonry building in India. The wonderful part of it is that except the builder, a Roman Catholic priest from Europe, the workers are all Indians trained by himself without any other supervision. The place is well worth a visit by those interested in buildings. Not only the construction, but the mode of carrying out the work, are said to be well worth the study of those concerned with like undertakings.—*Indian Engineering.*

STEEL WORKS, JAPAN.—As a site for the proposed Japan Branch of Armstrong and Co., there has been purchased an area of some 20,000 "tsubo" (one "tsubo" 3.9538 square yards) at the mouth of the Sakaigawa, near Hiratsuka. The expense of the wooden fence around the grounds alone is said to have reached Y. 20,000. Upon the completion of the proposed factory it is expected to take the lead in its line in this country, and to meet every demand. It is said that the Japanese Government has included in the contract with the Company the option of purchasing the branch after a certain term of years.

STEEL WORKS, TAIREN, (DALNY).—An Osaka report states that several prominent business men in Tokyo and Osaka contemplate establishing an iron foundry in Tairen with a capital of 30 million yen. Some experts will shortly be dispatched to Tairen with a view to carrying out the necessary investigations. The foundry will get its coal from Fushun and its ore from Taya, and produce mainly rails and materials for shipbuilding.

STEEL AND IRON WORKS, JAPAN.—The Meiji Ironworks Company to be organized by Messrs. Hakamada and Yamagashi will have a capital of 500,000 *yen* and establish its workshops in Tokyo and Naoyetsu. The capital is divided into 10,000 shares, of which 6,500 shares will be offered to the public for subscritpion.

GUN FACTORY, NEAR BAIKAL.—A St. Petersburg telegram of July 11, which is published by the *Asahi*, states that the Russian government is making arrangements to establish an arms factory east of Lake Baikal for the purpose of supplying the troops in the Far East.

HUANGPOO CONSERVANCY.—An agreement, between Taotai Jui and Commissioner Hobson, who represents the Chinese Government, and Mr. J. de Rijke, dated 7th June, 1906, has been published by the *Universal Gazette*. By the agreement Mr. de Rijke has been entrusted with the work of conservancy of the river Huangpoo, but all the works shall first obtain the consent of the Conservancy Board and the engineers to be employed will be nominated by Mr. de Rijke but with the consent of the Conservancy Board. The term of the agreement is three years counting from the 7th June, 1906, and six months notice is required to renew the agreement in case the works shall not be completed within three years, and such extension of the term of the agreement shall not be over two years and further extension shall be made if necessary in a similar manner. The office and residence for Mr. de Rijke will be provided by the Chinese Government, but if Mr. de Rijke has a residence for his family of his own accord such shall be paid by himself. During the term of the agreement Mr. de Rijke shall solely devote himself to the works of conservancy and extra jobs shall not be carried out by him unless with the consent of the Chinese Government. The salary of Mr. de Rijke is £3,000 per year and he will be paid from the 4th November 1905, to the date of agreement at that rate, etc.—*Mercury.*

CHEMULPO HARBOR IMPROVEMENTS.—With reference to the projected improvements at Chemulpo Harbor, it is now stated that arrangements are being made to carry out the work on a large scale.

According to present plans, an area of 42,300 square metres, immediately in front of the Custom House, is to be reclaimed from the sea, and is to form the site of a jetty about sixty ken in length and a landing place of three hundred ken. Ten godowns are to be constructed near the landing place.

WET DOCK, SASEBO, JAPAN.—A plan for constructing a gigantic wet dock is mooted at Sasebo. According to the plan, two islands, in front of the naval arsenal at that port, are to be connected by a break-water, and the inside of the break-water is to be converted into one big wet dock. When constructed, the dock will be able to take in a great number of warships all at once.

YELLOW RIVER CONSERVANCY.—The engineering works on the banks of the Hoangho which are being made to prevent this stream from overflowing have been commenced at a point between Hotang and the provisional telegraph office on the sand-bank in the river.

STEEL TOWBOAT.—The Shanghai Dock and Engineering Co., Ld., launched on the 6th of August from their Pootung Works the single screw steel towboat *Daisy*, built to the order of Mr. G. McBain for the Mattschappij-Tot Mijn Boschen Landbouwexploitatie in Langkat. The following are the dimensions of the boat:—Length over all 100′; Length between perpendiculars 105′; Breadth 20′; Depth 17′6″. The engines are vertical compound, direct acting, surface condensing, having cylinders 16 and 36 inches in diameter by 24 inches stroke. The boiler is a single ended steel cylindrical return tube type, and arranged to burn oil fuel on arrival at her destination.

NEW DREDGE, MANILA.—A new 12-inch suction dredge to be called the Pasig has been launched by the Atlantic, Gulf and Pacific company. The Pasig is a counterpart of the giant dredge Manila with which the company has been prosecuting its lower river and bay work, except for its peculiar adaptability to work, up the river above the bridges under which the Manila could not pass.

The new dredge is equipped with a collapsible house deck and hinged stack which will permit of its passing under the bridges spanning the Pasig and devote itself to work laid out for it up the river.

As soon as it is launched it will start pumping and terraplaning up the river where the company has contracts for filling in the low lands which are often flooded during the rainy season when the Pasig breaks over its banks.

LAUNCH OF THE FUSHIMI.—The launching and christening of the new Japanese shallow draft river gunboat "Fushimi" took place at the branch yard of the Kawasaki Dockyard Co., Shanghai, on Aug. 8.

The "Fushimi" when completed will be the fastest and most powerful shallow-draught gunboat on the Yangtsze river. Her dimensions are: length between perpendiculars, 160 feet; breadth, 24 feet 6 inches; draft, loaded, 2 feet 3 inches; displacement, 180 tons; and her designed speed is to be 14 knots. She was built by Messrs. Throneycroft and Co., in England, and sent out to Japan in sections, and then sent on to Shanghai, where she was put together.

THE MITSUI BISHI DOCK CO.—This company has decided to construct a floating dock of 11,000 tons. The floating dock will be placed at Kobe. The completion of the proposed dock is to be expected about May next and the arrival of the same at Kobe about July.

MOJI DOCK COMPANY.—The application for the establishment of a dock company at Moji has been filed with the Government. The prospectus of the new firm includes, it is reported: capital Y3,500,000; Constructing two dry docks—No. 1, 480 feet long, 60 feet wide, 28 feet deep, suitable for vessels of 7,500 tons; No. 2, 600 feet long, 75 feet wide, 30 feet deep, for vessels of 12,000 tons; accepting orders for shipbuilding of vessels under 5,000 tons. The yards will be constructed at Okubo.

LAUNCH OF THE "CHU-YU."—The Chinese Gunboat "Chu-yu," has been launched at The Kawasaki Dock Co., Kobe. This is the third of six sister boats contracted for the Chinese Navy. 200 ft. long, draught 8 ft., displacing 740 tons and intended to travel 13 knots. She carries two 12c.m. q.f. guns, two 12pr. q.f. guns and four maxims.

CHINESE-BUILT LIGHTERS.—The Imperial Naval Yard at Tongku has completed putting together two large light draft lighters which are to be employed in the conveyance of salt at Pehtang, and were constructed in parts in Holland to order of the Salt Commissioner, and arrived some two months ago. These are the first boats of their kind put together in these waters by Chinese.

TORPEDO BOAT DESTROYERS, JAPAN.—During the late war the Naval authorities started the construction of 29 destroyers with a portion of the war expense. So far 22 of them have been completed and the rest are as follows:—The *Shirotae, Uzuki, Minazuki, Nagazuki, Kikuzuki, Yunagi* and *Matsukaze.* All these destroyers are expected to be launched shortly.

OSAKA IRON WORKS.—A trial run of the destroyer *Hayakaze* built by the Osaka Iron Works, was carried out in the sea of Tenpozan on August 1st, ulto. The vessel ran for one hour at full speed, and was in the second stage of the run, when a cylinder was damaged and she had to return to the works again. She is now being repaired for another trial run.

URAGA DOCK CO., JAPAN.—A general meeting of the Uraga Dock Company will be held on the 18th of August at the Geographical Association building when a dividend will be declared at the rate of 6.5 per cent per annum. The rumor concerning the acquisition of the dockyard by the Government is unfounded.

NEW STEAMERS, JAPAN.—The Mitsui Bussan Kaisha is reported to be contemplating constructing three steamers for its use, each about 3,000 tons.

GUET HAN RAILWAY.—Railroad help wanted by the Kwang-Tung Mercantile Administration of the Yuet Han Railway Company, Limited, in the Kwang-tung section. Chinese civil engineers or engineering students having experience in railroad preliminary, location and construction. Must be capable of handling any kind of railroad instruments on field work.—Address applications, giving training, references, experience and samples of work, to H.E. Chang, President of the Kwang-tung Mercantile Administration of the Yuet Han Railway Company, Limited, Canton.

THE KWANG-TUNG MERCANTILE ADMINISTRATION OF THE YUET-HAN RAILWAY CO., LTD.—Tenders are invited for five first-class, five second class, and ten third-class coaches, two baggage cars and twenty dump cars—capacity five cubic yards. The Coaches are to be the same style as the First and Second-Class Coaches of the Sam-Shui Division, with the exception of the length, which will be 60ft. over end-sills.

The Third-Class Coaches are to be the same as the Second-Class Coaches of the Sam-Shui Division with the exception of the interior finish, and the seats to run longitively—the sides and double-centre seats.

Bidders will be required to state the net cost and time of delivery free alongside the wharf—Wong Sha.

Tenders will be opened in the Head Office, Canton, on the 23rd day of August, 1906, at 11 a. m.

The Company reserves the right to reject any or all tenders.

CHANG TO CHAI,
President.

Canton, August 9, 1906.

CEYLON GOVERNMENT RAILWAY.—Messrs. Robert Stephenson & Company, Ltd., of Darlington, have lately received an order from the Crown Agents for the Colonies for six locomotive tank engines for the Ceylon Government Railways. The locomotives are to have six wheels coupled with a pair of leading wheels and a trailing bogie. The cylinders will be 19 in. stroke and 26 in. diameter. The same firm have also received a "repeat" order from the Aranco Railway Company for additional rolling stock similar to an order Messrs. Stephenson are now completing for the same company.

SUPPLY OF SLEEPERS.—Messrs. Millars' Karri and Jarrah Co., Ld., have completed their contract with the Assam-Bengal Railway for the supply of 20,000 Jarrah wood sleepers, which are required for renewals in the Chittagong and Hafiong Districts. For renewals in the Third Section (Gauhati-Lumding-Tinsukia) the A.-B. Railway Company have arranged to use 5,000 Ajar wood sleepers and 35,000 Nabor wood sleepers (local).—*Railways.*

BURMO-CHINESE RAILWAY.—Calcutta, 1st August.—The Anglo-Chinese negotiations for carrying on a projected Burmo-Chinese railway is approaching completion. The first section of the line—Bhamo to Tengyueh—will be a joint Anglo-Chinese undertaking. The second section, which ends at Yunnanfu, will be a wholly Chinese undertaking. China is also arranging for the purchase of the French railway from Tonquin into Yunnan.—*Straits Times.*

LOCOMOTIVES FOR INDIA.—The North British Locomotive Company have contracted to build 60 locomotive engines for two of the Indian Railways.

THE FAR EASTERN REVIEW

COMMERCE ✪ ENGINEERING ✪ FINANCE

VOL. III. MANILA, P. I., SHANGHAI, AND YOKOHAMA, OCTOBER, 1906. No. 5.

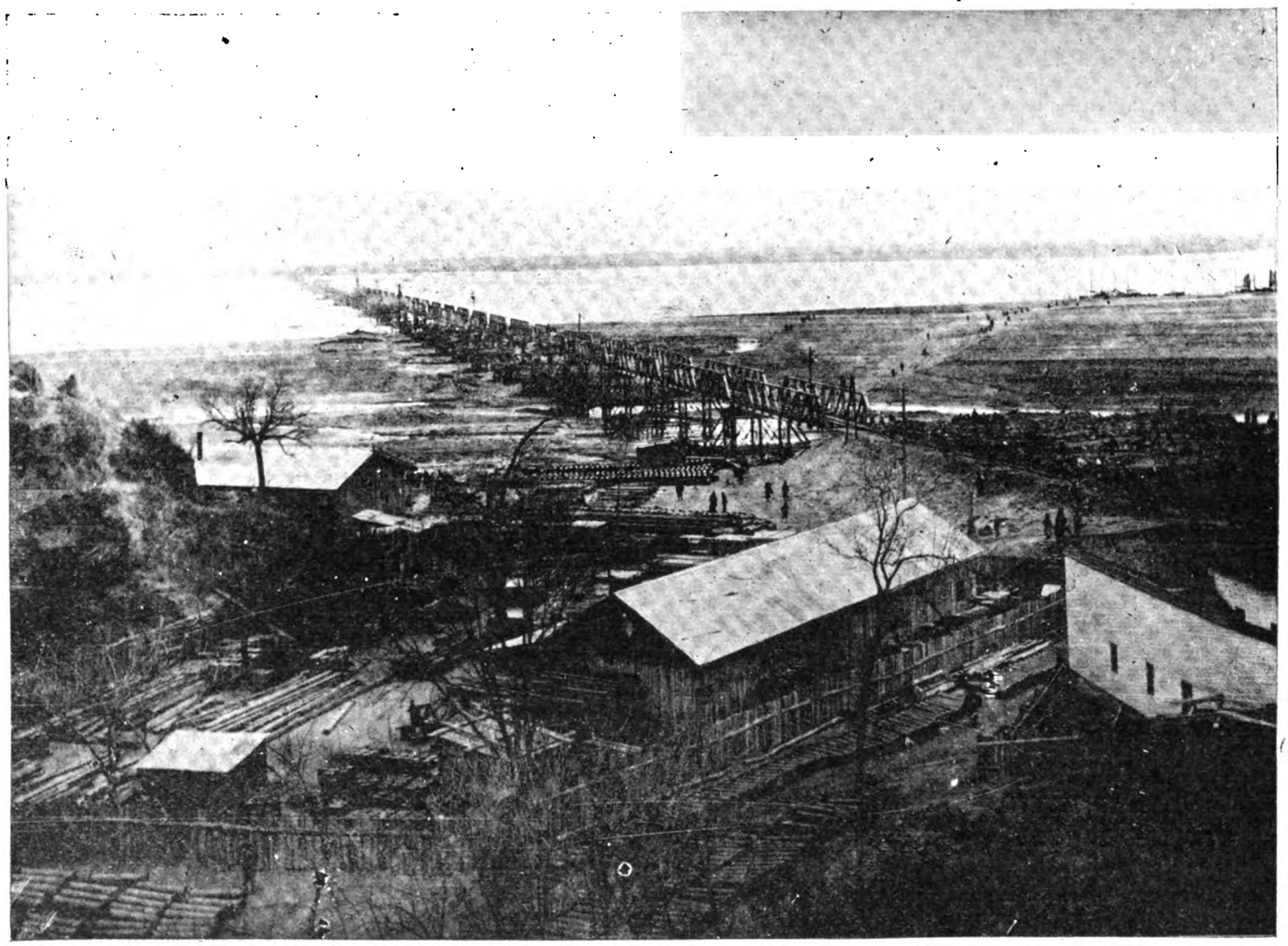
CONSTRUCTION OF THE PEKING AND HANKOW RAILWAY BY THE FRANCO-BELGIAN SYNDICATE

Of all the enterprises in China in which Belgian capital has taken a share, the most important is certainly the Peking-Hankow (Lu-Han) Railroad.

This immense line is 1,200 kilometers long and constitutes, with its future extension from Hankow to Canton, the Great Central Railway of China, which will one day form the trunk line of all the other railroads of Central China, and which will link the Gulf of Pechili with the Gulf of Tong-King—2,500 kilometers—passing through Hankow, the largest port of the Yangtsze Blue River, which is situated at the junction of this waterway and the Han River.

The Hankow-Wuchang-Hanyang agglomeration—the knot of the entire Chinese system of railroads—had formerly 6,000,000 inhabitants, but there remain now no more than 2,000,000 since the terrible Taiping Rebellion which desolated this region. Owing to her unique location on one of the finest rivers of the world, in the center of a valley with a population of 100,000,000 people, nothing, however, should prevent Hankow from returning to her ancient importance as a trade center. The same may be said of other cities as railroads replace the almost extinct imperial highways and the obstructed canals.

On the N., the Great Central Railway of China will connect, *via* the Imperial Railways of North China, with the Manchurian and Transsiberian systems; on the S., by means of the Lan-son and projected Nanning lines, with the French Indo-China system. The idea of a railway traversing all the provinces of Central China had, since sometime ago, been the essential subject of all China theories concerning railroads.



GREAT STEEL BRIDGE ACROSS THE HWANG-HO, OR YELLOW RIVER

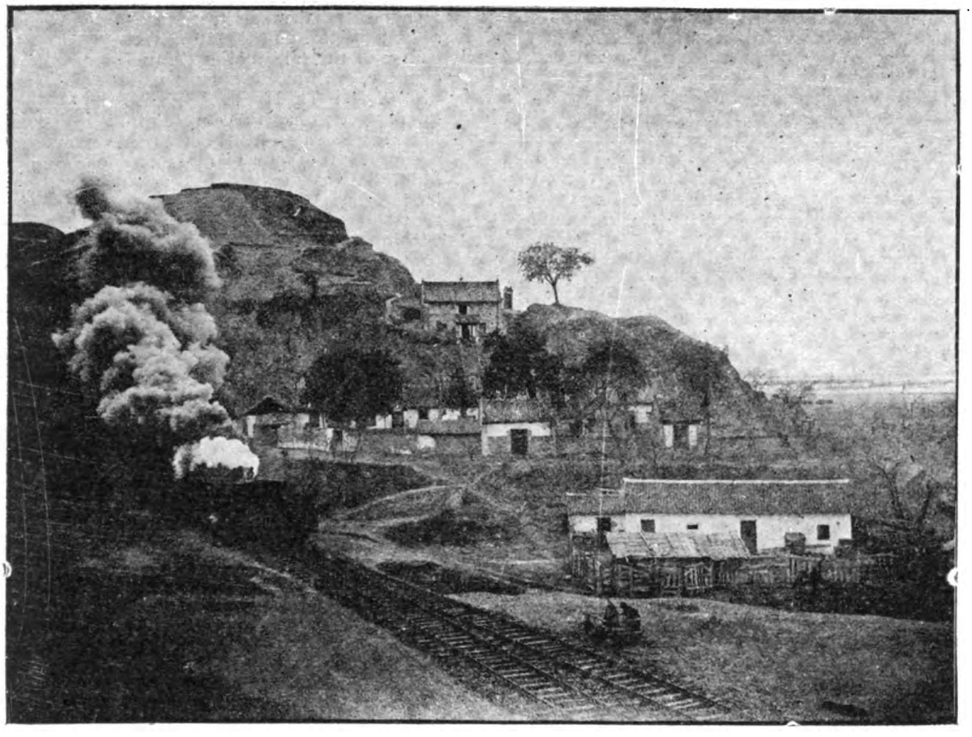
PROJECT FORMULATED.—In 1889, Chang-Chih-Tung, then Governor of Canton, formulated a clear project in a report to the emperor at Peking. His proposals were considered as most valuable and an imperial decree sent Chang to the viceroyalty of the Two Hus, of which the capital (Wuchang) and Hankow face each other on opposite sides of the Yangtsze. His special mission was to preside over the construction of the southern portion of the Peking-Hankow line, while Li-Hung-

(Continued on page 146)

CONSTRUCTION OF THE PEKING AND HANKOW RAILWAY BY THE FRANCO-BELGIAN SYNDICATE

(Continued from page 143.)

Chang, then Viceroy of the Province of Pechili, was looking after the final construction of the road in its northern portion. Chang-Chih-Tung must have on this occasion felt very keenly the great difference there is between the completion of a colossal undertaking and its execution. Years passed by, and the clever viceroy saw no possibility whatever of how to carry out his stupendous project. He knew well that the creation of enterprise should be carried out without the help of foreign money. The two promoters of the project received authority to grant the concession to a company of the "most favored country." They communicated first with the United States. Chang thought that the United States had no special political design upon China; but the exaggerated pretensions of the American capitalists towards the concession compelled the promoters to seek elsewhere less onerous conditions. They then turned towards Belgium, "a very wealthy, small country, whose power is negligible," as they said in their report of December, 1897. They



SOUTH TUNNEL ENTRANCE TO THE YELLOW RIVER BRIDGE

such a railroad had, besides its economic conclusions, a very great political complexion. He knew that if China wished to prevent foreigners from possessing a new and dangerous weapon, she must construct her future railroad absolutely with her own resources. But to do this money was necessary, and it was impossible to obtain money in China.

BELGIAN AND FRENCH CAPITAL NEGOTIATED.—About the end of 1896, Chang and Li caused the Sung-li-Yamen to understand that the latter had much miscalculated the resources of China when it proposed that this national chose this country, guided by the above political considerations.

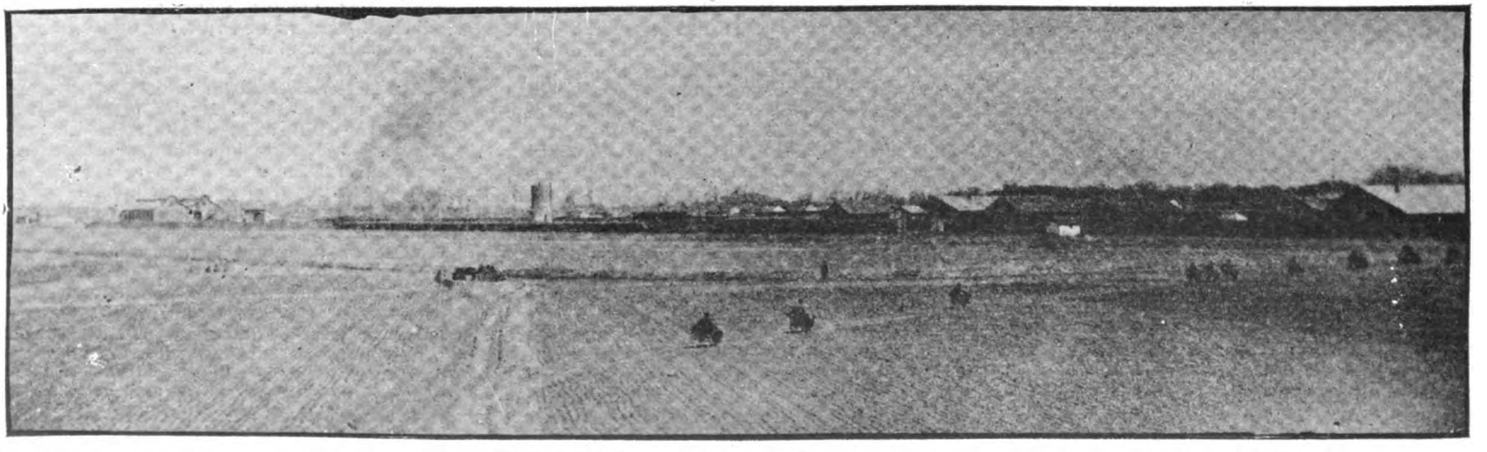
On another side, while the negotiations were taking place, M. Gérard, minister for France at Peking, thought the moment had come to remind the Sung li-Yamen about Article 7 of the Franco-Chinese Treaty of June 9, 1885, which stipulates that "in the construction of railroads, China will use all her influence to attract French industry." The political power of France was, for the Belgians, a precious auxiliary to protect, when necessary, their involved interests. The result was, therefore, a fusion of Belgian and French capital in one company.

Since 1897, a preliminary contract had been signed between the Chinese Government and the Franco-Belgian Syndicate for the construction of the railroad, and on June 26th, 1898, despite a rather strong opposition from Great Britain, the Belgian minister at Peking, M. Joostens, obtained the definite concession of the road for the *Société d'études de chemins de fer en Chine.*

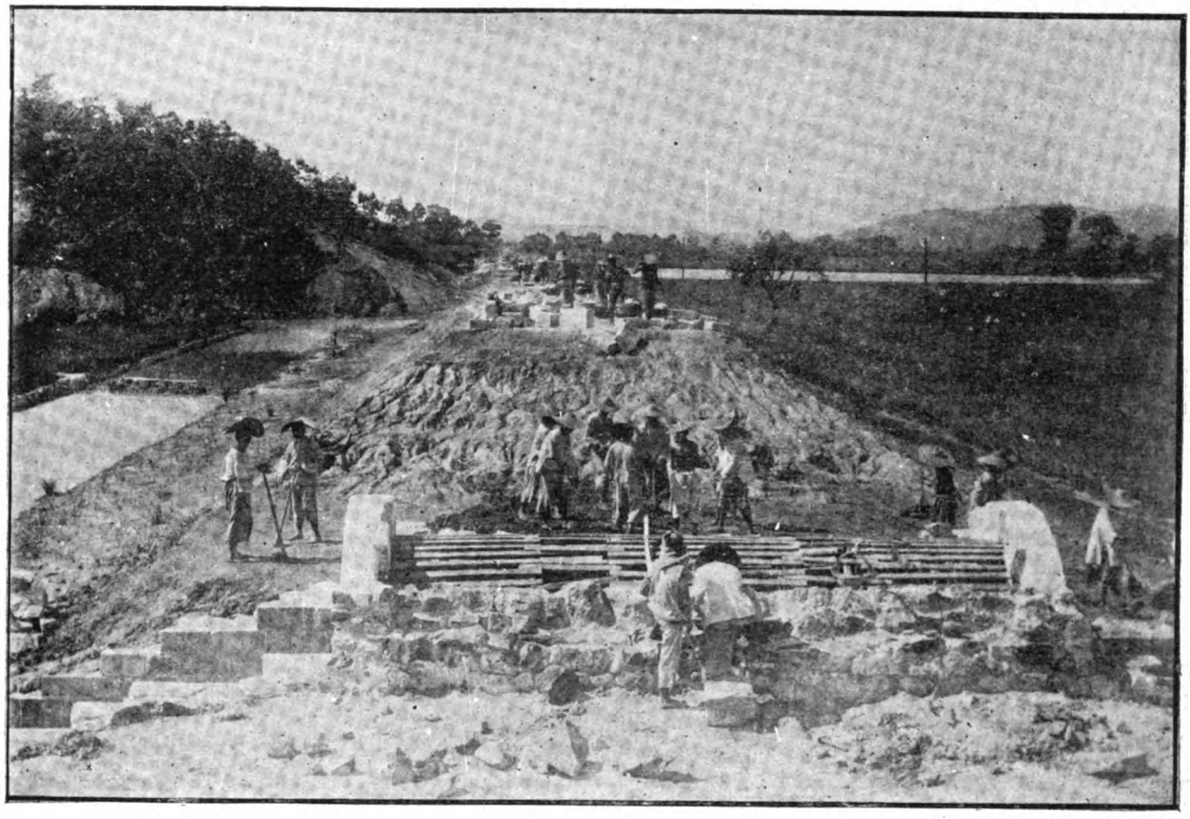
PROVISIONS OF THE CONTRACT.—In this connection it might interest the readers to know the nature of the contract that linked the Sung-li-Yamen to the Franco-Belgian Syndicate just mentioned. The Manchurian system of railroads had been built by a Russian company, and the German system by a German company. Both of these companies had been created at the risks and perils of the concessionaries, without any guarantee from the Chinese Government. It was altogether different with the concession granted to the Franco-Belgian Syndicate, which obtained not only the support of Chinese Imperial Company of Railroads, conducted by Chang, but also the official patronage of the Peking Government, which gave it financial support by working out the following combination:—

In order to facilitate the operations of the contracting company, China decided to issue a state loan. The specifications having been accepted and the amount to be spent approved by competent authority, the Chinese Government remitted to the syndicate bonds at 90 per cent sufficient to cover the expenditures decided upon. The syndicate had only to negotiate these bonds. The money obtained by this operation constituted the capital with which to build the road for the Peking Government, the contracting syndicate receiving as remuneration for its trouble 20 per cent of the net profits of its undertaking. Such was the ingenious mechanism which served as a basis for the convention concluded, in 1898, between the Chinese Imperial Company of Railroads and the syndicate. It presented this considerable advantage that the concessionaries had, in reality, not to trouble themselves about the formation of a construction capital; they had only to secure sufficient credit in order to convert into money their Chinese paper. It was thus that in March, 1899, a loan amounting nominally to 112,500,000 francs, called the 5 per cent Chinese Loan of 1898, was issued at the same time at Brussels and in Paris. The transaction seemed even then so brilliant that the loan, in Paris alone, was covered ten times over.

SURVEYS AND COMMENCEMENT OF CONSTRUCTION.—While the negotiations were going on, Chang Chih-Tung had already had the first surveys and drawings made. The road, for a short distance from Hankow, goes along the Yangtsze, then traverses



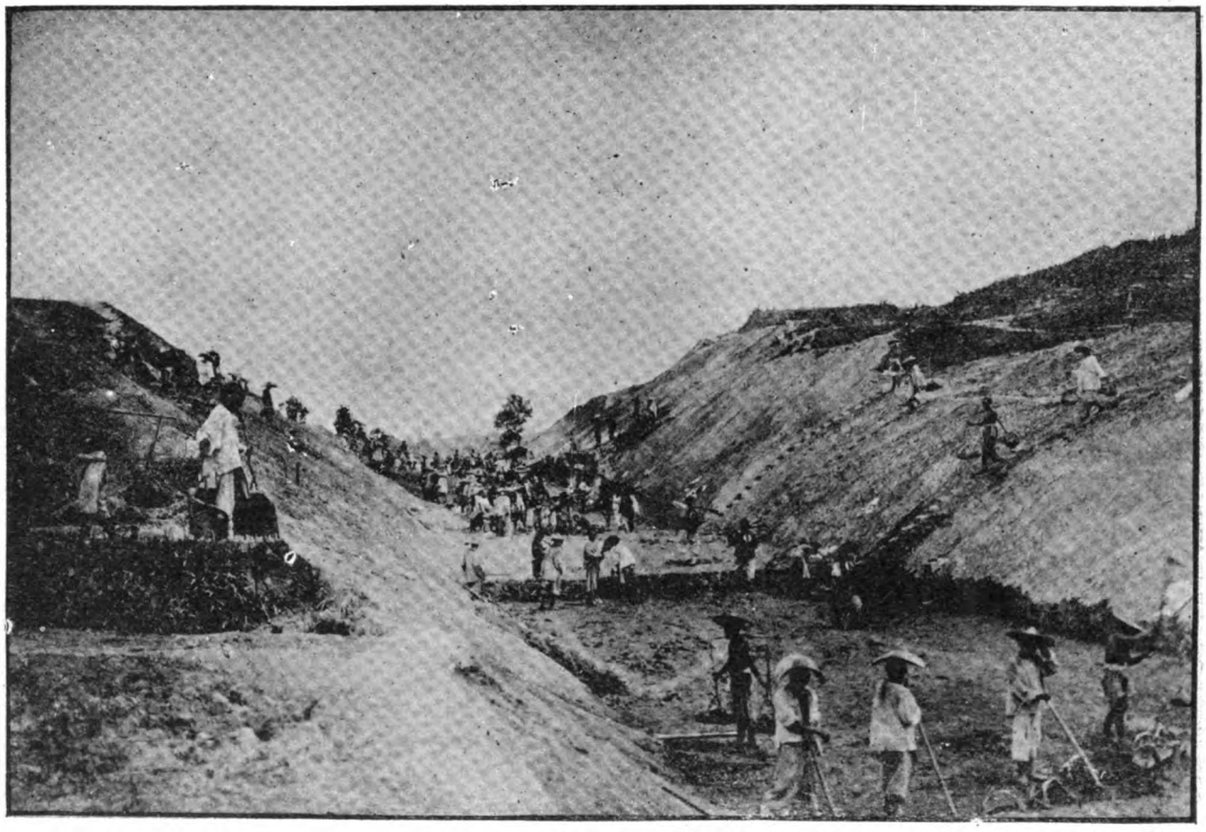
COMPANY'S CENTRAL SHOPS AND HEADQUARTERS AT CHANG-SIN-TIEN



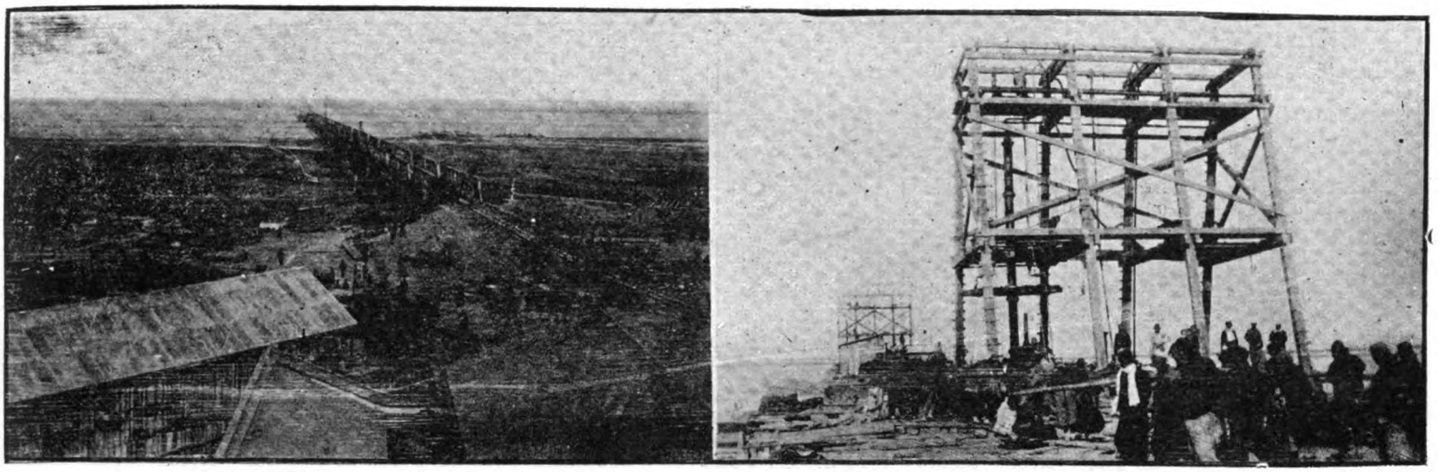
EARLY STAGE OF ROADBED CONSTRUCTION

the Hu-pei Plain. From Honan-Chau—at the 153d kilometer post—the line zigzags between steep hills forming scenery to be compared with the finest Japanese landscapes. After Sinyang, it traverses another charming plain, a little before reaching the Hwang-ho (Yellow River), where is erected on the summit of a hill a temple concentrated to the divinity of the river.

Work was begun in 1899, simultaneously on the Peking terminus and on that of Hankow. It was very actively carried on under the direction of the efficient Belgian engineer, M. Jean Jadot, as chief engineer of the Pei-Hau. In this year quays and workshops were constructed, and rolling stock, materials, etc., for construction purposes, were purchased and received. It was necessary to build a great number of bridges, some of which reach a height of 420 meters. Though the work was interrupted for nearly a year—during the



ONE OF THE DEEPEST CUTS ALONG THE RIGHT-OF-WAY



GIRDER CONSTRUCTION AND SINKING SCREW-DRIVEN TUBULAR PILES FOR YELLOW RIVER BRIDGE

Boxer trouble of 1900—and though the buildings were partly destroyed, the concessionaries succeeded in building in the same year 90 kilometers of line on the Hankow section.

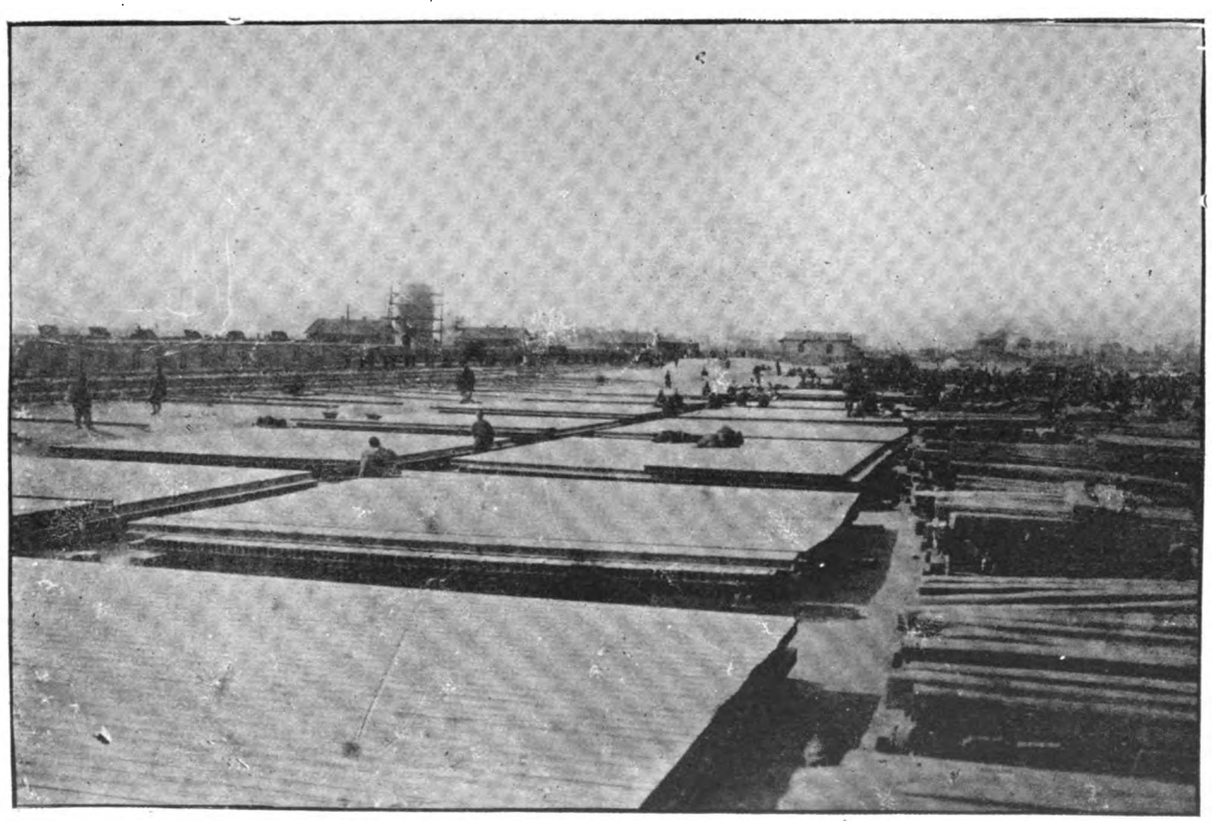
In 1901, great damage by inundation was done to the embankments between the Chinese City and the river railroad station; when the wind blew hard, the waves swept even the embankments. As this part of the road is more or less inundated every year, in summer, during the rise of the Yangtsze River, it was necessary to cover with stone the N. slope of the embankment so as to avoid annual repairs. This great work was completed at the beginning of 1902.

At Hankow, at the river railroad station, vast workshops and sheds were erected. A quay of 4,800 meters had been built all along the river, and vessels of deep draught can now come alongside. The maintenance of the quay is very costly, as the current gnaws at and mines the river, and forcing, therefore, the use of immense quantities of rock to resist its action.

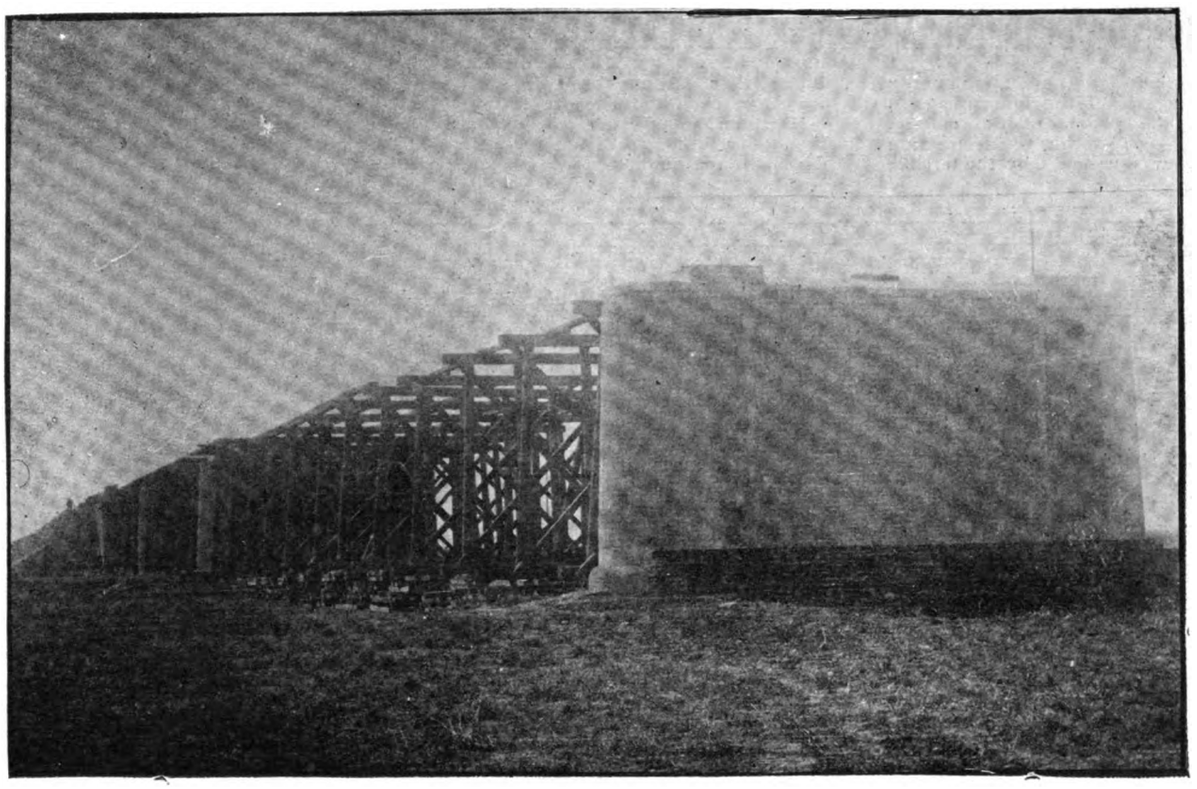
Notwithstanding the inundations, and before the end of 1901, the road was opened on the Hankow side, and its distance was 153 kilometers. There was first a weekly service from both ways, but, since the beginning of 1902, three trains weekly were needed.

At the 155th kilometer, the road traverses the line which divides the basins of the Yangtsze and Hwang-Ho rivers over a height of 200 meters. It was necessary to cut the rock through a length of 20 kilometers, and to get beyond the summit a tunnel of 350 meters had to be pierced, wide enough to allow the laying of a double track. This difficult engineering work was completed in August, 1902, and thus allowed the traffic up to Sinyang, at the 218th kilometer post. The same year saw the inauguration of a daily train service between Hankow and Sinyang, as well as the installation of a second station at Hankow, in the French Concession. In the spring of 1903, a third station was opened at Hankow, on the Han River, quite close to the wall of the Chinese City. On January 1st, 1904, the road was opened up to the 313th kilometer post at Chau-Ma-Tien. This is the terminus in the N. of the Hankow section. It is at this station where ends the immense Northern Plain and where begin the ramifications of the hills which form more southerly the boundaries of Honan and Hu-Pei. Some of the slopes are steep, and there it is necessary to add more locomotives to the trains. The heavy trains coming from the N. are transformed into light ones at Chou-Ma-Tien for the Hu-Pei and the Yangtsze, and *vice versa*.

GREAT YELLOW RIVER BRIDGE.—At the beginning of December, 1904, on the Hankow side, rails were laid up to the Hwang-Ho River—500 kilometers. Across this waterway the gigantic Hwang-Ho River bridge has been constructed. This structure is 3010 metres long. The construction of this bridge was a unique feat in engineering and one on which the eyes of the engineering world was earnestly fixed. It is about 6.25 meters above high-water level, and is of steel throughout,



MILLIONS OF TONS OF MATERIAL UTILIZED FOR RAIL AND BRIDGE WORK



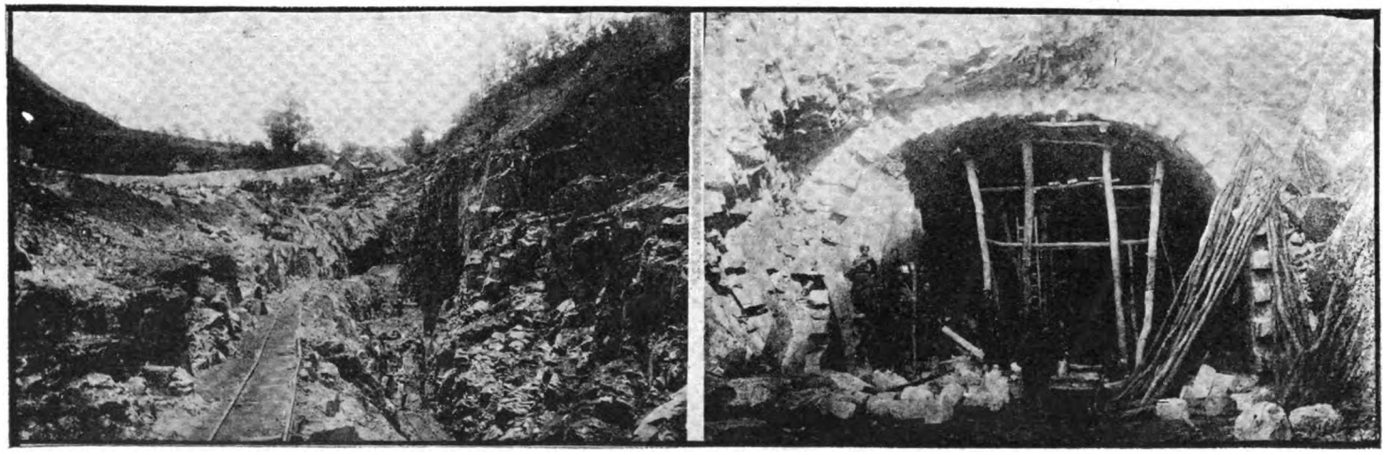
GENERAL TYPE OF PIER CONSTRUCTION

the massive girders being supported on sets of screwdriven tubular piles. The steel piles were screwed into the bed of the river by means of hand capstans manned by squads of coolies. In fact all bridges are of steel and like construction, while the approaches and other masonry work are of concrete. The bottom end of each pile has a tooth point with a large inclined blade above it, not unlike the tip of a corkscrew. To each point was clamped an enormous grooved pulley, around which was wound a wire hawser. One end was led to one of the capstans, and then the coolies heaved away and the work of screwing began. The rotary motion of the piles, with the corkscrew blade, naturally screwed the pile down into the mud till the pulley was level with the platform on which the workmen were standing. When the pulley reached this platform, another length of pile was bolted together, the pulley raised to the upper flanges, and the screwing resumed. When the piles had been screwed to a sufficient depth, say 12 to 15 meters, the water was pumped out from the interior. The pile was then filled with concrete. Wooden piles were then driven around the current side of the piers in the shape of a triangle, with the points to the current, as a protection to the structure. Huge beds of tree branches, lashed together with wire, were then sunk around the steel piers, and on these beds hundreds and hundreds of tons of rock were thrown. This was reckoned to give more solidity to the river bed where the piers were driven, and possibly prevent the river washing away the foundations, if such the shifting bed of the river can be called. The steel piles were placed in sets of four, six, eight, and ten, and each pile is joined by stanchions and girders of great strength, and finally each set of piles is spanned by an enormous girder on which the rails are laid. Half of this bridge was built in France, the other half in Belgium, the work being distributed among the principal builders of the two countries.

The river bed is one gigantic quicksand and during the construction of the bridge many piles were sucked under as well as platforms supporting machinery. Breakwaters of stone have been built along the banks of the river to prevent the undermining of the bridge foundations, and either end of the structure is protected with stone-faced dykes to prevent the water washing away the dykes.

The construction of the Peking section of the line went on apace with that of the southern section, and the conjunction was formed at the Hwang-Ho River bridge. The road is now, and has been for several months, in operation through from Peking to Hankow.

ROADBED, TRACKS, GAUGE AND ROLLING STOCK.—The roadbed is well-built and solidly ballasted, over which the most powerful locomotives may work at full pressure. The gauge is the same as that prevailing in Belgium, and the rails were all submitted to a most severe test at Hanyang where they were mostly manufactured. These tests were those enforced by the Belgian Government for its railways. The weight of the rails is 37.6 kilograms per meter. The rolling stock is modern and plentiful, and some of the trains which run through from Peking to Hankow and *vice versa* are equal in appointment and speed to many similar trains on European lines. There are three classes for passengers, the cars for the 3d-class being open. The fare is about 3 cents. The rates for 1st and 2d-class are about 9 and 6 cents per kilometer.



TEMPORARY CONSTRUCTION TRACK AND TUNNEL WORK NEAR YELLOW RIVER

FAR EASTERN ENGINEERING, CONSTRUCTION, COMMERCIAL AND FINANCIAL NEWS

RAILWAYS AND RAILWAY SUPPLIES

MANILA RAILWAY COMPANY, LTD.—The London offices of this company have been removed to No. 7 Union Court, Old Broad-st, E. C.

MUKDEN-SINMINTUN RAILWAY.—This line has been opened to traffic. The distance between the termini is 36 ms., time to cover it 3 hrs. 20 mins.

KORSAKOFF-VLADIMIROVKA RAILWAY, SAGHALIEN.—This railway, which is in the Japanese portion of the Island of Saghalien, is about completed.

CANTON-HANKOW RAILWAY.—Taotai Kwang Sing Chi is the new manager of works for this line, and has entered upon his duties with headquarters at Canton.

TATSUNO-CHO-ABOSHI HARBOR LINE, JAPAN.—The construction of this line in the Prefecture of Hyogo, covering about 6 ms., has been sanctioned by the Tokyo Government.

SEOUL-FUSAN RAILWAY, KOREA.—The Japanese military authorities have formally handed over at Chemulpo the Seoul-Fusan Railway to the director of the Korean Railways Bureau.

RESTORATION OF THE TIENTSIN RAILWAY.—Negotiations for the restoration of the Tientsin Railway to China have been opened by the Chinese officials with the foreign ministers at Peking.

FEDERATED MALAY STATES RAILWAY SHOPS.—The railway shops of the Government of the Federated Malay States, which were recently removed from Taiping to Ipoh, are to make another journey, and this time to Kuala Lumpur, the federal capital.

CANTON-WHANGPOA RAILWAY.—The British minister at Peking has demanded of the Wai-wu-pu to instruct the Viceroy of Two Kuang Province to suspend the work of constructing the Canton-Whangpoa Railway. The cause of British inteference has not yet been made public.

KOWLOON-CANTON RAILWAY.—A severe outbreak of malarial fever has occurred among the coolies engaged in cutting the hill near Shatin for the tunnelling in connection with the construction of the Kowloon-Canton Railway. Hongkong hospitals are reported to be receiving numbers of the laborers daily.

CANTON-AMOY RAILWAY.—Viceroy Shum is reported to have arranged all the right-of-way and will give military protection to all construction camps. The route is from the East Gate to Whampoa and direct to Amoy, a distance of 1,500 ms. The line and company have been registered. Construction may begin sooner than was originally intended.

RAILWAYS IN CHINA.—Great development is taking place in China in connection with railways, and the Chinese themselves are forming companies and raising capital for building the lines. So long as there is nothing in the shape of a concession or exclusive control, the Chinese are willing to cooperate with foreign contractors for the building of the various lines.

PALACE CARS, KINSHIN RAILWAY, JAPAN.—The J. G. Brill Company, Philadelphia, Pa., recently received an order from Japan for five palace cars for the Kinshin Railway. These cars will be of steel underframes, vestibuled and finished and equipped throughout in the most elaborate manner. The firm also received orders from the same road for the steel underframes and trucks for 25 passenger coaches.

FEDERATED MALAY STATES RAILWAYS.—According to the annual report for 1905, by Sir William Taylor, Resident-General of the Federated Malay States, recently issued, the Government spent $6,880,000 on railways, against $6,240,000 in 1904. This included $1,349,505 paid to the Government of the Straits Settlements on the purchase of the Malacca Railway and $2,034,991 expended on railway construction within the federated states. Railways show an increase of 56 ms. constructed during the year, and now total 396 ms.

RAILWAYS IN THE MALAY PENINSULA.—The railways open for traffic in the Federated Malay States extend at present to 396 ms. The total length of the main trunk line from Jahore Bahru to Prai, now under construction in the Province of Wellesley, will be 472½ ms. when completed. At the present moment, exclusive of the construction in Jahore territory, there are 33 ms. odd under construction S. of Tampin, 21 ms. of which are ready for opening. Other lines are contemplated leading N. through Pahang, for which preliminary surveys have already been made, and routes have been explored through Kelantan to Kota Bahru, at the mouth of the Kelantan on the coast of the China Sea.

SOUTH MANCHURIAN RAILWAY.—The cost of necessary work on this scheme is estimated as follows:—Reconstruction or improvement of main line between Tairen and Changchun, and construction of rolling stock, -Y-28,000,000; improvement to Tairen Harbor, -Y-5,000,000; working capital for Fuchum and Yentai collieries, -Y-4,000,000, doubling of track between Tairen and Suchatun, -Y-9,600,000; cost of land and capital for warehouse business, -Y-8,000,000; capital for marine transport department, -Y-10,000,000; reconstruction of line between Mukden and Antung, -Y-22,000,000; reserve fund, -Y-13,400,000. Total sum to be raised, -Y-100,000,000.

MANCHURIAN RAILWAYS.—The reconstruction of the railway between Changtu and Shwang-miao-tsz has been finished and formally opened to traffic. The sections N. of Shwang-miao-tsz will be opened to traffic by the end of October. The repairs to the Southern Manchurian Railway, between Shwang-miao-tz and Kunchuling—a section which was in the most ruined condition when received by the Japanese from Russia—have made so great a progress that they will probably be completed by the end of the current month. The repairing work is also in progress on the Kunchuling-Changchun section. It is believed that the whole line of railway will be ready for the running of trains by the middle of November, or a month earlier than was originally expected.

MECHANICAL SUPPLIES FOR CHINESE RAILWAYS.—The imperial railway management of China expends approximately $1,500,000 gold annually in the purchase of foreign mechanical supplies. In this connection, however, it may be stated that railway materials represent but a small value this year in the matter of the construction of the Canton-Hankow Railway in consequence of the difficulties which have arisen over the line. The value of machinery purchased was about the same as last year, or $95,000 gold. Under this heading considerable development may be looked for in future years. It must be noted that heavy machinery to the value of over $150,000 gold was imported at Canton from Hongkong.

RAILWAY FROM INDIA TO CHINA.—The importance of developing Indian trade connections with China grows yearly, says *Railways* (Calcutta). In an official note on the Burma transfrontier trade routes into Western China Mr. T. C. Wilson, Settlement Commissioner of Burma, writes:—The development of the Western China trade depends upon the mode of transport employed. Under existing circumstances there is an entire absence of trade for 4 mos. in the year, that is, from June to September. During the rains the roads are impassable for pack animals of any description. Last year the heavy rains flooded the country, washed away roads and bridges and caused a block in the opium trade. In the interests of commerce in general and of this province in particular it is very desirable that Bhamo and Tengyueh should be connected by a railway, so as to secure uninterrupted trade communication with Western China. A railway of any description would considerably enhance the importance of Bhamo, which is the emporium for British goods for China, as Tengyueh is for those from China. Another consideration of importance in favor of the construction of a line of railway is that goods could be booked direct from the Rangoon customs office to Tengyueh in bond without breaking bulk at Bhamo.

ELECTRIC LIGHTING, TRACTION, POWER, ETC.

SIAM ELECTRICITY COMPANY, BANGKOK.—The tram cars of this company's lines run on an average 739,386 ms. a year.

TOKYO-YOKOHAMA ELECTRIC RAILWAY.—The construction of the second line of this road has been completed and it is now in operation.

NATIVE CITY, SHANGHAI.—Negotiations are now in progress for the electric lighting of the Chinese City of Shanghai, and the contract for this is likely to go to a German concern.

TELEGRAPH LINE TO MANCHURIA.—China is taking the necessary preliminary steps for the construction of a telegraph line to connect her principal cities with the important commercial centers of Manchuria.

TURBO-GENERATOR IN BANGKOK.—The Siam Electricity Company, Ltd., has istalled a turbo-generator at its power station which makes 1,800 r. p. m. at a pressure of 150 lbs. per sq. in., and generates 500 kws. of current.

ELECTRICALLY-DRIVEN PAPER MILL, JAPAN.—Messrs. Mitsui & Co. have arranged to establish a large paper mill on the banks of the Tetorigawa River, Kaga Province, from which water-power, electrically driven, will be generated.

ELECTRIC FANS, JAPANESE RAILWAYS.—Electric fans are now fitted in the 1st-class carriages on the Imperial Japanese Government Railways, and a trial of a ventilator intended for 2d-class carriages has been made with satisfactory results.

ELECTRICAL POWER PLANT, SHANGHAI.—The contract for the supply of the new machinery and plant, required by the municipal electrical department of Shanghai to enable it to provide power for the tramway service, has been placed with Messrs. Bruce, Peebles & Co.

JAPAN-AMERICA CABLE SERVICE.—Since the opening of the direct cable service between Japan and America on August 1st, from 100 to 280 messages have been despatched over the line every day, and the income to the Japanese Government amounts to -Y-16,000 a month, or about -Y-200,000 a year. Before the service was opened the Government paid from -Y-100,000 to -Y-200,000 each month to the Great Northern Telegraph Company.

PUBLIC AND PORT WORKS, DOCKS, ETC.

FLOATING DOCK, JAPAN.—The Kawasaki Dockyard Company, Kobé, has decided to build a floating dock of 15,000 tons, at a cost of -Y-250 000.

WATERWORKS, NEWCHWANG.—The concession for the supply of water to this city has been secured by an Englishman, and British capitalists will be offered the investment.

CANTON WATERWORKS.—More than 2,000 coolies are now employed on the construction of the new waterworks plant at Canton and four reservoirs have been dug out near a place called Tsangpoa.

GOVERNMENT WATERWORKS AIDS, JAPAN.—The Government aids to cities in Japan for the construction of waterworks in Moji, Niigala, Hiroshima, Osaka, Otaru and Nagoya, for the next fiscal year, will total about -Y-800,000.

WATERWORKS AT DALNY.—The Japanese authorities are contemplating the enlargement of the waterworks at Dalny. Originally built by the Russians, the works were damaged during the war and repaired since the occupation by Japan.

CHEMULPO (KOREA) WATERWORKS.—A plan is on the way to construct waterworks at Chemulpo. The water will be derived from Hangang, and reservoirs constructed on the banks of the Yöngsan. Land for this purpose has been acquired.

HARBOR INVESTIGATING COMMITTEE, JAPAN.—With a view to perfecting the harbor accommodation and opening new harbors to cope with the requirements of the development of the country, the Japanese Government has appointed a harbor investigating committee.

MEGANE BRIDGE, TOKYO.—This structure, one of the landmarks of Tokyo, is to be destroyed in order to make way for the station of the Kobu Railway. The company has undertaken to enlarge the Shohei Bridge, to compensate for the removal of the Megane. The work is now under way.

ANOTHER DOCK, SHANGHAI.—The Shanghai Engineering Company will soon begin the construction of a new dock on the Shanghai side of the Whangpoa, on the site of its present work, as soon as the assent of the harbor and conservancy authorities is obtained. The dock will take in ships up to 320′ with a draught of 20′. The company has a reserve fund equal to its capital of Tls. 120,000.

CONSTRUCTION OF ROADS, NORTH CHINA.—It has been decided by the Chinese authorities to begin the construction of public roads outside of the foreign settlement of Shanghai, immediately. Surveyors have begun to work out the proposed roads, which are to be of a uniform width of 50′ (Chinese measure), including sidewalks, the latter of which are to be 8′ (Chinese measure), on either side of the road, thus making the road proper 34′ in actual width. Householders are warned that dwellings standing in the way of the proposed roads have to be taken down and removed.

BREAKWATERS AND WHARVES, YOKOHAMA.—Baron Mitsui Hachiroemon has asked permission of the Japanese Government to reclaim 95,085 *tsubo* of land at Yokohama from the sea. The cost of the undertaking is set down at -Y-4,541,205. It is intended, if permission is granted, to construct breakwaters and wharves. The area that is to be reclaimed extends from the E. breakwater of the custom house and the right bank of the Shin Ikutagawa. Starting at the E. end, a breakwater, 195 *ken* in length, will be built. The outer or E. side will be used as a regular breakwater, while a wharf, 180 *ken* in length, will be constructed along the inner side. This will be called breakwater No. 1. Starting at a point about 75 *ken* W. of this breakwater, breakwater No. 2 will be constructed parallel to No. 1. The second wharf will afford accommodation to vessels on both sides and will be 100 *ken* IN LENGTH.

KAWASAKI DOCKYARD ACTIVITY.—The Kawasaki Dockyard Company, Ltd., is at present working its plant at high pressure, according to the *Kobé Herald*, the following list of vessels being under construction:—Osaka Shosen Kaisha, two steamers of 2,500 tons each to complete next spring; Hunan Steamship Company, one steamer of 1,500 tons, to complete this (October) month; Nippon Yusen Kaisha, three steamers of 3,500 tons each, to complete next winter and spring, and two steamers of 8,700 tons each, to complete in 1908; Viceroy of Hukuang, six gunboats of 740 tons each, to complete next winter and spring, and four torpedo boats, to complete in the same time; Japanese Naval Department, one despatch boat of 1,251 tons, to complete in 1907, and one destroyer of 350 tons, to complete next spring; Viceroy of Liangkiang, three gunboats of 600 tons each, to complete in 1907; Siamese Naval Department, one destroyer of 380 tons, and three torpedo boats, to complete in 1907.

PUBLIC WORKS, SINGAPORE.—The Singapore Municipality is raising a loan of $1,600,000 at 4½ per cent for the following public works:—Raising dam, $10,485.84; Stamford Canal, $66,826.42; Completion of filters 11-12, $9,962.81; purchase of Worthington pumps, $82,724.93; new water mains, $100,000; electric power installation, $200,000; new cinerators, $35,000; Pearl's Hill reservoir, $55,000; Mahomedan Cemetery, $60,000; Tanjong Katong-rds, $75,000; Cantonment-rd, 25,000; salt-water system for street sprinkling, $150,000; Bididari Cemetery laying out, $50,000; bridge over Singapore River, $140,400; quarantine camp, $100,000; Kalang Tunnel, $140,000; new markets and extensions, $130,000; fire stations, $70,000; purchase of land for street improvements, $50,000; reforming town drains, $50,000. In response to a question recently propounded in the Legislative Council at Singapore as to the list of public works the Government was to undertake in the Straits Settlements, the Colonial Secretary replied:—The works it is proposed to carry out: are (*a*) Singapore River improvement, $4,650,000; (*b*) extension of Penang Pier, $1,260,000; (*c*) Lagoon Dock, $7,000,000; (*d*) reconstruction of wharves, $6,900,000; (*e*) graving dock, $3,300,000

SINGAPORE HARBOR IMPROVEMENTS.—At the recent annual meeting of the Singapore branch of the Straits Settlements Association, the committee re-

YOKOHAMA SUGAR REFINING COMPANY.—This company has been organized with Messrs. K. Abe, M. Masuda, K. Masuda, Z. Tanaka and Konosuke Abe as directors.

ENGINEERS TO BE SELECTED.—The Premier of New South Wales has authority to select ten engineers, with salaries ranging up to $5,000 gold each, for a large engineering work.

EASTERN ASIA FLOUR MILL COMPANY.—This is a Japanese company with an authorized capital of -Y-3,000,000. It aims at conducting its business both in Japan and China.

IWASHIRO SULPHUR COMPANY.—Iwashiro Province (Japan) capitalists, headed by Messrs. Motoyama & Okabe, have organized this company. It has a capital stock of -Y-500,000.

YOKOHAMA SPECIE BANK.—The net profits of this institution for the first half of the current year were -Y-3,363,908.04. The interim dividend was at the rate of 10 per cent *per annum*.

JAPANESE SOUTH AMERICAN CONSULATES.—The Japanese Government has determined to establish consulates in South America, to develop commerce and emigration to that country.

SOUTH MANCHURIAN RAILWAY RECEIPTS.—The daily receipts of the South Manchurian Railway at present average about -Y-13,000. Over 7,000 persons are now employed regularly on the line.

TOBACCO MONOPOLY, JAPAN.—The tobacco crop of Japan this year is estimated at 15,000,000 *kwanme* (*kwa.*, about 3¾ kilos), being an increase of more than 20 per cent over an average year.

ANOTHER INSURANCE COMPANY, JAPAN.—Messrs. A. Fukuhara, K. Makoshi, S. Hiranuma and other Japanese capitalists, are organizing a fire insurance company at Tokyo with a capital stock of -Y-5,000,000.

HOTEL SCHEME, TOKYO.—The aldermen's council of Tokyo has been asked by Mr. Nakano, president of the Tokyo Chamber of Commerce, for a loan of -Y-300,000 for the purpose of building a hotel.

TOKYO STOCK EXCHANGE.—*The Japan Times* says that the delivery of shares on the Tokyo Stock Exchange at the end of August broke the record in amount. It numbered 130,850 shares, valued at -Y-10,443,490.

AUSTRIAN BRIDGE, TIENTSIN.—The remaining parts of the new Austrian bridge under construction at Tientsin have arrived there and it is believed the structure will be opened to traffic before the end of the current year.

YOKOHAMA WATERWORKS LOAN.—Messrs. Samuel Samuel & Co. have made overtures to the Yokohama municipality to the taking up of the waterworks loan, amounting to -Y-3,000,000, which is to be issued by the city.

CHARTERED BANK DIVIDEND.—The directors of the Chartered Bank of India, Australia and China have declared an interim dividend at the rate of 13 per cent *per annum*, free from income tax, for the half year ended June 0th last.

CHAMBERS OF COMMERCE, CHINA.—Most of the larger towns in the Province of Chekiang are establishing chambers of commerce. These are semiofficial bodies, being under the supervision of the local bureau of agriculture, trade, industry, and mines.

TOKYO SPINNING COMPANY.—This company is about to increase its capital of -Y-1,200,000 to -Y-4,800,000. The object is to extend the plant to 500 looms and 60,000 spindles, which will involve an immediate addition of 125 looms and 30,000 spindles.

INDUSTRIAL SCHOOL, SEOUL.—The Japanese and Korean authorities have decided to establish an industrial school at Seoul. The initial expenses are estimated at -Y-200,000, and the annual expenses at -Y-40,000. Among the sciences taught will be civil engineering.

WATER POWER ELECTRIC COMPANY, YINGKOW, CHINA.—This company, which has been formed by Japanese with a view to developing various industries in China, with electricity for power, has a capital of -Y-2,000,000. The head office of the company is in Tokyo.

TOKYO ELECTRIC POWER COMPANY.—The organizing general meeting of this corporation was held recently, and the following officers elected:—President, Mr. Tokunori Asada; directors, Baron Shibusawa and Messrs. K. Ohura, S. Asano, M. Tachikawa, T. Nakane, and T. Okochi.

COTTON MILLING IN SHANGHAI. The cotton mill business in Shanghai is making good progress. At present the spindles number about 300,000, of which 100,000 are owned by the Chinese, 100,000 by the British, 50,000 by the Japanese, and 40,000 by the Germans. The trade in general is most active at present.

TSUKIJIMA ROPE MANUFACTURING COMPANY, JAPAN.—This company intends to extend its business by issuing new shares and also to establish a wire-rope factory. The directors are reported to be negotiating with representatives of the Tokyo and Susaki rope manufacturing companies with a view to the amalgamation of their interests.

GLASS FACTORY, OSAKA.—A scheme is on foot to establish a large glass factory at Osaka, under joint ownership of Japanese and Belgians. The capital will be -Y-1,500,000, of which sum -Y-1,000,000 will be subscribed by the Belgians and French, and the balance by Japanese. The patent Belgian window plate glass will be manufactured.

CEMENT MANUFACTORY, CANTON.—It is announced that Chinese capitalists of Canton have acquired a site for the erection of a large Portland cement factory. A kind of limestone, said to be suitable for cement manufacture, has been found on a hill in Fa Yuen District, where a branch factory will be put up to supply the main works.

SHANGHAI OIL COMPANY, LTD.—This company has secured a little more than 12 *mow* of land at Jessfield. The contract for its building has been let, the foundations completed, and the walls are already under construction. The buildings are expected to be finished by the time the machinery arrived, the installation of which will be pushed as rapidly as possible.

INDUSTRIAL BANK OF JAPAN IN KOREA. According to *The Japan Times*, the Japanese authorities have decided to appoint the Industrial Bank of Japan agent for promoting the industry and agriculture of Korea. The bank will make loans not only to various Government works, but also on behalf of individual and agricultural property in the Hermit Kingdom.

TOKYO KISEN KAISHA.—At the recent general meeting of this company a resolution was passed to the effect that the company shall issue during the next year debentures amounting to -Y-3,000,000 in order to pay for a portion of the cost of five cargo boats, valued at -Y-6,000,000. The balance will be made good by the issuance of another batch of debentures at a suitable time.

SINGAPORE BRANCH, STRAITS SETTLEMENTS ASSOCIATION.—At the recent annual meeting of this association, the following officers and committee were elected for the ensuing year:—President, Hon. John Anderson; vice president, Mr. W. G. St. Clair; honorary secretary and treasurer, Mr. Rowland Allen; committee, Messrs. Maclaren, Peirce, Gentle, Eidin, Tan Jiak Kim, Fort, Ellis, and Robinson.

NORTH BORNEO TRADING COMPANY.—At the ninth ordinary meeting of the directors of this company, held recently in London, it was reported that the trade accounts for the year showed a gross profit of £3,297, and the profit and loss account, after charging all expenses, showed a credit balance of £1,431, which, with the balance for the preceding year, £2,723, made a credit total of £4,154. The company cultivates rubber.

CHINESE IMPERIAL BONDS.—The London office of the Hongkong and Shanghai Banking Corporation gives notice that 5,000 bonds, representing £500,000 of the Chinese Imperial Government 5 per cent gold loan of 1905, will be paid off at par on March 1st next. The numbers of bonds to be redeemed will be drawn in January, 1907, and will be in addition to the ordinary annual drawing of 500 bonds, representing £50,000.

CEMENT MARKET, JAPAN.—Reports from Japan are to the effect that the cement market of that country is now very active, owing to the resumption of different works already in course of construction, which were suspended during the war. In the early months of last year prices on cement ruled at -Y-3.20 or thereabouts, per bbl; but they have now advanced to -Y-4.70. It is said that orders are being received in considerable quantity from America, Manchuria and Korea.

HOKKAIDO COLLIERY AND RAILWAY COMPANY, JAPAN.—In connection with the loan of £1,000,000 which this company raised in London some time ago, as a result of the nationalization of the railway, the Japanese Government will bear 40 per cent of the loan and the company the remainder, 60 per cent. The directors of the concern have proposed to the shareholders that the name, in view of the nationalization of the road, should be changed to the Hokkaido Colliery Steamship Company.

RECLAMATION OF AGRICULTURAL LANDS.—Japanese and Korean capitalists have organized at Seoul a reclamation and cultivation company, with a capital of -Y-1,000,000, for reclaiming waste land and improving the cultivation of land already reclaimed but not productive. The company will at once come into limited possession of 34,527 acres in the N. and S. of Kyongsang-do. The land has been actually surveyed and permission to reclaim it has been obtained from the Government.

JOHORE PLANTERS' ASSOCIATION.—This association was recently organized at Johore, with the following officers:—Honorary president, H. H. the Sultan of Johore; vice-presidents, H. E. Sir John Anderson, K. C. M. G., governor of the Straits Settlements; Sir Frank Swettenham, K. C. M. G., and Hon. John Turner, M. L. C., Penang; chairman, Mr. F. Pears, Lanadron Estate, Muar; honorable secretary, Mr. Staples, Johore Bahru; committee, Mr. E. Valpy, Gunong Pulai, Johore, and Mr. Stanley Arden, Pulau Kukob, Johore.

CEMENT CONTRACT, MANILA.—Messrs. Findlay & Co., of Manila, have been awarded the contract for supplying 30,000 bbls. of their "Alsen" brand of cement to the military establishment of the Philippine Islands to be used for fortifications at Corregidor and Isla Grande, the latter place being in Subig Bay. Other bidders were W. H. Anderson & Co. and E. C. McCullough & Co., Inc., "Green Island" brand; Froelich & Kuttner, "Saturn" brand; H. W. Peabody & Co., "Atlas" brand; Behn Meyer & Co., "Hemor" brand.

SIAM ELECTRICITY COMPANY, BANGKOK.—In 6 mos. this company earned about Tcs. 300,000. There was some difficulty in making the tramway pay because, owing to competition, the Samsen line showed a deficit of Tcs. 40,000. On the other hand the Bangkolem line did better than ever before, and thus permitted the company to balance accounts. The total tramway receipts were Tcs. 787,130. During the past year the company has spent over Tcs. 500,000 in improvements to its plant, etc., and during the past 3 yrs. Tcs. 100,000 were paid out in dividends.

KOREAN WATERWORKS COMPANY, LTD.—The first ordinary general, or statutory, meeting of this company was held recently in London, Baron George de Reuter presiding. The company has a share capital of £250,000, and the whole of the debentures, *viz.*, 2,500 of £100 each, have been subscribed for. The chairman reported that the work of constructing the waterworks plant at Seoul is well under way. The company's resident engineer is Mr. H. G. Foster Barham, who is now believed to be on the ground. Messrs. Livesey, Son & Henderson, London, are the company's consulting engineers, and the work will be done under their supervision.

YOKOHAMA ENGINE WORKS, LTD.—The report of the directors of this company for the year ended May 31st last, was recently presented to the shareholders at their eighteenth general meeting. The net profits for the 10 mos. under review amounted to -Y-38,320.80, or an increase of -Y-27,453.80 as compared with the previous 12 mos. This former sum to which was added -Y-13,614.55 brought forward from previous account, left the directors -Y-51,935.35 available for distribution, which it was decided to appropriate as follows:—Dividend at the rate of -Y-10 per share, -Y-26,000; establishment of a reserve fund -Y-20,000; carried forward to next account, -Y-5,935.35.

PAKNAM RAILWAY COMPANY, LTD.—At the 30th ordinary meeting of the shareholders of this company, held recently, the following gentlemen were in attendance:—Chairman H. Dehlholm, Luang Sunthorn Kosa, Dr. T. Hayward Hays, Messrs. J. M. Dunlop, J. Robertson, J. McEwen, H. V. Bailey, and Secretary H. A. Tozer. The gross receipts for the 6 mos. were Tcs. 83,237.28 and the expenditures Tcs.29,577.96, leaving a profit of Tcs. 53,659.32. Traffic receipts for the period were the highest on record. In addition to his duties as chairman of the board of directors Mr. Dehlholm has been given the general management of the road.

ZAMBOANGA (P. I.) CUSTOMS RECEIPTS.—Zamboanga, the capital of the Moro Province, heads the list of Philippine ports in the matter of increased customs collections. The remarkable improvement in business conditions at this port is best evidenced by the following table which appears in a special report of the insular collector of customs covering the fiscal year, ended June 30th, 1906, which follows:—

1904	₱ 82,240.40
1905	108,719.86
1906	178,818.96
Total	₱369,779.32

GERMAN MONEY ISSUE IN CHINA.—The concession of the German-Asiatic Bank for issuing and circulating bank notes in the German Protectorate of Kiauchou and the German settlements in China, runs for 15 yrs. The bank notes will be of the value of 1, 5, 10, 25, and 50 dollars, and 1, 5, 10, and 20 *taels*. In the Chinese Province of Shantung only notes of the money standard of Tsingtau can be circulated. The dollar, as mentioned in this concession, is the current Mexican dollar or a coin which in general commerce is recognized as equal in value at the various places of issue or is made so by law. The bank agrees to pay 1 per cent *per annum* on the yearly average amount of the daily circulation of the bank notes. The sureties for the security of the notes are the Bank of Commerce and Industry, of Berlin; the Commercial Association, of Berlin; S. Bleichroeder; the German Bank; the Disconto Association, and Mendelssohn & Co., of Berlin.

HONGKONG INDUSTRIES, 1907.—Speaking on the budget of Hongkong Colony for 1907, Governor Nathan recently referred to the industries of the colony, with special reference to the new territories, in the following terms:—"The question of public works leads one naturally to the question of the progress of industries in this Colony. The year promises to be a very important one in this respect. The mining in the New Territory is now apparently advancing beyond the prospecting stage, and if it proves to be the success that its promoters anticipate the colony will benefit thereby. Another great industry which has been started this year is flour-milling at Junk Bay, to which we wish every success. Speaking last year on the subject of industries I referred to the assistance which was given to the promotion of industries by exhibitions. Since then we have completed an exhibition of the products of Hongkong and South China in the imperial institute in London. An exhibition of industrial arts in the colony has been arranged for, and we have also started again the annual flower show."

GOVERNMENT IRON FOUNDRY, JAPAN.—This industry now supplies almost all the necessary material used in the construction of battleships; yet it still needs capital and work to make the foundry a profitable business. There are employed here 6,000 skilled artisans, and 1,000 temporal hands. The foundry mostly manufactures iron and steel plates, cartridges, building material and rails. The battleship *Aki*, and the cruiser *Ibuki*, now in course of construction, are receiving materials from this foundry. Generally speaking, the foundry, with the present ratio of manufacturing power, sends out of ordinary articles about 90,000 tons yearly, but for such refined articles as are used in building battleships, it can only supply 70,000 tons at present. But when the plan which the Government has projected for the foundry will be completed, it can produce 180,000 tons a year quite easily. In order to regulate the yearly quantity of coal production from the coal-mine in the possession of the foundry, a digging of a pit of 1,000 *shaku* has been devised as the successive work of 5 yrs. It has also begun in setting up another furnace besides the two previous ones. It will be completed next year. Finally the extension of the railway lines which are used for the conveyance of the manufactured articles from the foundry is among the new projects.

FAR EASTERN ENGINEERING, CONSTRUCTION, COMMERCIAL AND FINANCIAL NEWS

PERSONAL

MR. J. W. BEARDSLEY, C. E., M. Am. Soc. C. E., Director of the Bureau of Engineering of the Philippine Islands, has returned to his post of duty after an extended vacation in America.

MR. RICHARD T. LAFFIN, 2d Vice-president and General Manager of the Manila Electric Railroad and Light Company, has returned to his post of duty after an extended business sojourn in New York City. He returned to the Philippines *via* the Suez Route.

MR. CHARLES M. SWIFT, President of the Manila Electric Railroad and Light Company and one of the promoters of the railway system on the Islands of Cebu, Panay and Negros, Philippine Islands, will arrive in Manila from the homeland shortly after the first of the new year.

VICEPRESIDENT AND CHIEF ENGINEER WILLIAM POLAND, of the Philippine Railway Company, which has undertaken the construction and operation of the new railroads in the Visayan Islands, is *en route* to Manila where he will establish offices. Mr. Poland was formerly chief engineer of the Alaskan Railroads.

ELECTRIC LIGHT, ETC.

KOYTO-OSAKA ELECTRIC RAILWAY.—The survey for an electric line between Koyto and Osaka is in progress. The construction is expected to be completed within 18 months.

MILITARY TELEGRAPH LINES, PHILIPPINES.—Arrangements are being perfected by the War Department at Washington for turning over all the military telegraph lines in the Philippines Division to the Civil Government.

ELECTRIC RAILWAY AMALGAMATION, JAPAN.—There is good prospect, according to *The Japan Times*, that four electric railways—the Keihin, the Yokohama, the Enoshima, and the Odawara—will be amalgamated, and that the projected Atsugi line will join the union.

TRAMWAY, SAGHALIEN.—The Japanese Government have commenced the work of constructing an omnibus railway between Korsakoff and Vladimirofska, about twenty miles. The construction will be concluded in June. The cost is reported to be about a hundred thousand yen.

NEW ELECTRIC RAILWAY SYSTEM, KYOTO.—Japanese capitalists are organizing a company for the purpose of constructing and operating a new system of electric railways at Kyoto. It will have a capital of -Y-3,005,000, divided into 60,000 shares. The system will be 15 miles in length and run through and around the City of Kyoto.

RAILWAY, ETC.

HANGCHOW RAILWAY.—The route of the Hangchow Railway has been fixed, and will pass from Kiangkan, along the eastern side of the Grand Canal, to Hungchinkiao *via* Konshanmen.

KAWASAKI DOCKYARD COMPANY.—This company is reported to have made arrangements to begin the business of the manufacture of railway locomotives, carriages, freight cars, etc., the articles of association of the company having been amended accordingly.

SHANTUNG (CHINA) RAILWAY.—This line did a prosperous business last year, having conveyed 30,000 tone of freight and 795,000 passengers, which is an increasr of 65 per cent in point of freight and 42.5 per cent larges in passenger traffic than the preceding year.

RAILWAY COAT-OF-ARMS, F. M. S.—The Railway Department of the Federated Malay States has adopted the following coat-of-arms, which will surmount the doorways of all stations:—On a field verte, a car sable, surmounted by an "A" gules and a "B" argent; supporters a European and an Asiatic, rampant, regardant; crest, an Autocrat, on a wreath of the colors; motto *Stat pro ratione voluntas*.

RAILWAY BUILDING IN CHINA.—Railway building in the Namti Valley, China, is more destructive to human life than ever was the case with work on the Isthmian Canal. The American consul at Nanking, Mr. T. Haynes, reports that the death rate in that valley in China is 70 per cent of the total number of men employed, and even then work is suspended and the men removed during the summer rains.

DOUBLE-TRACKING THE SIBERIAN RAILWAY.—The Russian authorities have decided that the work of laying down a second line of rails along the Siberian Railway shall be begun next spring, and that until that time certain branch lines shall be laid down, as already projected, to connect the Siberian Railway with Tashkend in Russian Central Asia and with the Steppe region northeast of the Aral Sea.—*The London and China Express.*

RAILROADS IN VISAYAN ISLANDS, P. I.—Governor-General James F. Smith, accompanied by several high Government officials; Mr. F. A. Molitor, Supervising Railway Expert, and E. J. Beard, Chief Engineer to Messrs. J. G. White & Co., constructing contractors for the Philippine Railway Company, visited Cebu about the middle of the current month, where the Governor-General formally inaugurated the actual construction of the railroads in the Visayan Islands, which are being built under Government concession.

PEKING-KALGAN RAILWAY.—The section of the Peking-Kalgan Railway from Fengtai to Nankow has been opened to traffic. This line is being entirely undertaken by Chinese. Fengtai to Nankow represents one fourths of the whole line completed, which will tap the smokeless coal region of Chimingshan. The ties used in the construction are partly from Japan and partly from America, but the locomotives are from England. Three-fourths of the line are still under construction which requires a large quantity of timber and great expenditures.

CANTON-SAM SHUI RAILWAY.—It is reported from Canton that the Canton-Sam Shui branch of the Canton-Hankow Railway, is in such a dilapidated state owing to the neglect of maintenance of way by the Chinese that it will require the expenditure of about $1,060,000 to restore the line. Some foreign engineers lay the trouble to the American engineers who built the line, but the latter fix the blame upon the Chinese. The directors of the company are greatly discouraged over the condition of the road, and are experiencing difficulty in finding the means to effect the necessary repairs.

SPEYER RAILWAY SYNDICATE, PHILIPPINE ISLANDS.—General Manager Horace L. Higgins, of the Manila & Dagupan Railway, representing the Speyer Syndicate, which is to construct railroads on the Island of Luzon under Government concession, and the Manila Navigation Company have closed a deal whereby the property of the navigation company becomes the property of the syndicate. Three river steamers, three steam launches, 22 steam lighters, a number of cascoes and a shipyard at Pandacan, represent the property involved in the deal and will be utilized in the construction of the new lines of railway in the transportation of materials and supplies.

TARLAC RAILROAD, NORTHERN LUZON, LUZON, P. I.—The construction of the Tarlac railroad is progressing most satisfactorily. Manager Thurber, of the Manila Construction Company, has a force of 300 native laborers on the job at the Panique end of the line, and rails are being laid as rapidly as the grading is finished. The ties, all of native timber, are distributed along the route to Camiling, and the rails, all of which have been received in Manila, are being carried north as quickly as possible. Bridge and culvert work is keeping pace with the ground-level construction, and it is the belief of the company promoting the line that it will be open for the handling of freight by the time the crops for this year are ready for shipment, which will be about January.

MUKDEN TO ANTUNG BY RAIL.—Says *The London & China Express*:—The trip from Mukden to Antung is very invigorating as the miniature engine and trucks toil up and down and around all angles and grades, but with rarely an accident. The scenery is very beautiful. The line from Wiju on the Yalu River to Seoul is well laid and has some very fine carriages. When all the railways are finished Mukden will be a great railway center, with its lines to Fusan (for Japan) and Port Arthur, or Tairen (Ta Lien or Dalny) for Shanghai; and the line for Peking, Tientsin or Hankow and Central China. The line to Antung is at present a light military road, but a permanent one is being constructed. Very much is yet to be done to put the stations on the main line affected by the war into proper condition.

RAILWAY ROLLING STOCK, SIAM.—The decision with regard to the bids for rolling stock that were publicly opened on September 4th, at the head office of the Royal Siamese Railway Department, Bangkok, has been announced, and tenders accepted as follows:—*Baume et Marpent, Haine St. Pierre, Belgium*—Fifty open iron wagons without brake, unit price £180, total £9,000; 50 open iron wagons with brake, unit price £196, total £9,800. *Ban der Zypen & Charlier, Cöln, Deutz.*—One inspection car, £1,446; eight wooden covered wagons for piece goods, with shelves, unit price £260 15*s*, total £2,086; 35 iron covered wagons without brakes, unit price £173 5*s*, total £6,060 15*s*; 15 iron covered wagons with brakes, unit price £196 17*s*, total £2,952 15*s*; 11 cattle wagons without brakes, unit price £268 12*s*, total £2,954 12*s*; five cattle wagons with brakes, unit price £292 12*s*, total £1,463; 11 timber truck pairs unit price £233 7*s*, total £2,566 17*s*. *Brush Electrical Engineering Company, Ltd., London S. E.*—Eight composite carriages for 1st- and 3d-class, unit price £585, total £4,680; 10 composite carriages for 2d- and 3d-class, unit price £562, total £5,620; 32 3d-class carriages without brakes, unit price £493, total £15,776; 16 3d-class carriages with brakes, unit price £513, total £8,208; seven guard and luggage vans, unit price £426, total £2,982.

RAILWAY CONSTRUCTION IN JAPAN.—The actual condition of State-railway work in Japan is given as follows:—*West Central Line, Between Nagoya and Miyakoshi*—Work is proceeding on the 10-mile section from the Nakatsu River to Sakashita and on the iron bridge over the Kiso. East of Sakashita the route has been surveyed and the land is being purchased. *East Inyo Line, Maizuru*—Work has been commenced on the 4¼ mile section from Ayabe to Sonobe, and surveys are being made of the Fukushima-Wadayama and Wadayama-Shirosaki sections. *Hokuriku Line, Toyama to Naoetsu, 75 Miles*—The survey of the Toyama-Uwatsu position has been finished and the land is being purchased. *Kagoshima Line, Kagoshima to Yatsushiro, 92 Miles*—The portion between Kagoshima and Yoshimatsu has already been opened and work is proceeding on the Yoshimatsu-Hitoyoshi and Hitoyoshi-Yatsushiro sections, a distance of 52 miles. Between Yoshimatsu and Hitoyoshi there is an 8,000′ tunnel at Yadake so that the work will not be completed before 1909. *Hokkaido Line, Oshigawa to Kutshiro*—This road has been opened with the exception of the 42-mile section between Ochiai and Obohiro, and on which work is now progressing. *Doubling the Tokaido Line*—Portions of this work have been finished and portions are in hand. Two sections have not yet been touched, viz., that between Nakaizumi and the Tenryn River, and that between Gifu and the Kiso.

PUBLIC AND PORT WORKS, ETC.

FOOCHOW DOCKS.—The Council of Army Reorganization of the Chinese Government has decided to improve the dock at Foochow and appoint a responsible official as director of the dock.

PROVINCIAL SCHOOL BUILDING, SORSOGON, P. I.—The people of the Province of Sorsogon, P. I., have begun the construction of a provincial school building which will cost $75,000 gold.

PORT OF RANGOON, BURMA.—The shipping interests of Rangoon are threatened very considerably by the rapid silting up of the Hastings Shoal, so much so that the shipping agents have asked the port commissioners for relief.

INSULAR LUMBER COMPANY.—This company is about to begin the construction of a sawmill on its valuable tract of timber land in the Visayan Group, Philippine Islands, which will be equipped with modern machinery and have a capacity of sawing 200,000′ of lumber per day. The construction will be under the supervision of Mr. W. A. Campbell, M. E.

NEW MITSUI WORKS, KOBE.—The application made to the Japanese Government by the Mitsui Family for permission to reclaim the seafront in the vicinity of the new Ikutagawa, Kobé, with permission to construct a landing place there, has been granted. The Kobé Harbor Works plan, published by the Minister of Finance, is said to include the Mitsui works.

TIENTSIN BUND IMPROVEMENTS.—The work in connection with the erection of shear legs on the Tientsin Bund, opposite Bromley-rd, is progressing. The wharf on which they are to stand is nearing completion, all the piles having been driven in. A few more weeks will see the bund equipped with this necessary apparatus for commerce.

DRYDOCKS AT MOJI.—A Japanese syndicate has obtained permission from the Tokyo Government to construct drydocks at Moji. An extensive area of land will be reclaimed at Okubo, Moji, and two docks built thereon, work to begin next (December) month. The undertaking is expected to be completed by the end of 1908 and the cost is estimated at -Y5,000,000.

LAND RECLAMATION IN INDIA.—A scheme is proposed at Lahore, India, by the Government to reclaim a large area of land on the Dutch plan. The Rann of Cutch is a seashore waste, with narrow inlets which would be closed, allowing the shallow water to evaporate. The saline deposits would be washed out by a great canal from the Indus. The application of scientific agriculture to the reclaimed land and the construction of a railway linking Karachi and Bombay would complete the enterprise.

FLOATING DOCK, TSINGTAU, CHINA.—The floating dock at this German Colony is capable of taking in vessels of 16,000 tons capacity. It is fitted with the most modern appliances for lighting with an electrical supply operated from a central station, so that work may be carried on during the night. A steam plant is also provided that vessels in the dock may be heated during the winter. The shops are fitted for all kinds of work, and two cranes of 20 tons capacity each are available. The dock rates differ according to the size of the vessel, from about 20 cents gold per ton for a 500-ton vessel to 10 cents gold per ton for a vessel of 6,000 tons up.

SINGAPORE BUDGET, 1907.—The revenue of the Municipality of Singapore for 1907 is estimated to be $2,775,495, and the expenditure $2,768,461. The question of improving the sewage disposal system has been shelved, although hundreds of thousands of dollars are appropriated for electric power, new river bridges, roads, etc. Assessments are expected to show an increase of about $85,000 and rents of $10,000. The gas supply shows a falling off in estimated revenue, while no increase is expected from electricity. "It is interesting to note," says the *Singapore Free Press*, "that, roughly speaking, the cost of staff or *personal emoluments* in the municipality is about 19 per cent of the receipts, while in the Government administration the cost is about 28 per cent of the revenues.

OSAKA WATER WORKS:—Owing to the remarkable increase of late in the population of Osaka, now exceeding a million, the accommodation of the existing water-works is quite inadequate. The water-works were extended about five years ago to supply water to a population of 800,000, so that in the summer the supply of water has to be cut off for certain hours every day. The Municipal Council has now adopted a scheme for the further extension of the works, which is estimated to cost Y11,000,000. It is proposed to construct the intake works at Kunijima, and a filtering-bed and a reservoir near Suita, 250ft above sea-level. The money required for the extension will be raised by means of a foreign Loan, with interest not exceeding 5½ per cent, the actual face-value to be advanced without discount. The scheme will be laid before the Municipal Assembly in a few days

SHIPBUILDING, ETC.

URAGA SHIPBUILDING COMPANY.—This company intends to establish further shipbuilding yards, and for this purpose has increased its capital from $950,000 gold to $1,200,000.

DESTROYER "UDZUKI" LAUNCHED.—The Japanese destroyer *Udzuki* has been successfully launched from the Kawasaki dockyard, Kobé. She is one of five destroyers ordered from the company.

DOCK LABORERS' STRIKE, HONGKONG.—The strike at the Hongkong dockyard ended recently in the complete defeat of the men, who gave up their demand for an increase in wages and returned to work.

U. S. S. "RANGER" A TRAINING SHIP.—The Navy Department at Washington has agreed to turn over the ship *Ranger* to the Government of the Philippine Islands for the purposes of a training ship for the use of the insular nautical school, the students of which are Filipinos. The *Ranger* has been in commission with the Asiatic Fleet.

RIVER STEAMER "HANKOW" BURNED.—The Canton River steamer *Hankow*, owned by Messrs. Butterfield & Swire, was burned at her wharf in Hongkong Harbor, October 14th. She was valued at $400,000, and including this sum the estimated loss which takes in cargo, is $1,020,000. About 130 persons were killed in the catastrophe.

SAVING THE "MANCHURIA."—It is estimated that the cost of pulling the big liner *Manchuria* off the reef near Honolulu and taking her to port will amount to more than $500,000. One hundred thousand dollars worth of tackle was left at the bottom of the ocean. Litigation over salvage has been avoided by definite agreements with the owners of all steamers that participated.

KURE NAVAL ARSENAL, JAPAN.—Papers received from Japan announce that the Naval Office at Tokyo has decided to make the Kure Naval Arsenal the greatest shipbuilding yard in the Far East. At the present the Kure Arsenal has a steel foundry that can turn out 12" and 8" guns. Recently the slips for building the battleships *Aki* and *Ikoma* have been laid out, each measuring 400 yards in length. The number of ordnance works has been increased from 14 to 16. Other works are also being enlarged.

REPAIRS TO U. S. A. T. "MCCLELLAN."—The War Department at Washington has awarded the contract for repairs to the transport *McClellan* to the Tanjong Pagar Dock Board, with works at Singapore, and the ship has sailed from Manila under her own steam for that place, conveyed by a tender belonging to the contracting company. The Tanjong Pagar Dock Board's bid was $55,079 gold, and eight months will be required to complete the job. The bid of the Shanghai Dock and Engineering Company, Ltd., was lower than that of the Singapore company, but by its terms 10 months would have been required to make the repairs. The question as to whether it was desirable to have the work done two months sooner and pay more money for it, was submitted by the Chief Quartermaster of the Philippines Division to the Quartermaster-General of the Army, with the result as above stated.

RIVER NAVIGATION IN CHINA.—According to the *South China Morning Post*, the Marine Iron Works of Chicago, in addressing the American Consulate at Hongkong recently, had this to say of interest to owners of water craft:—"It can only be a question of time when the majority of the many rivers of China will each have to use at least a few powerful very light-draft steamboats. We refer to the head waters and central portions of those rivers in particular. Neither does their swift current and shallowness prevent the sucessful operation of suitable vessels. It may interest you to know that we are just completing a similar boat for the Hudson Bay Company of Canada, for use on the Mackenzie River, a run of over 1,000 miles. These boats average about 18" draft ready to load, and it is not unusual to build them for carrying from one to 10 tons of cargo on each additional inch of draft, according to the hull dimensions."

MINES, MINING AND MINERALS

PUMPS IN AUSTRALIA.—There is a large trade in Australia in mining pumps just at present.

IBARAKI (JAPAN) COAL MINING COMPANY.—With a view to supply the rapidly increasing market effectively, this company has installed new machinery, and with these improvements it can work over 10,000,000 *kin* of coal per month.

GOLD YIELDS OF JAPAN AND FORMOSA.—The yields of gold for Japan and Formosa, for 1905, are estimated at 95,000 and 66,000 ozs., respectively. Each country has shown a steady increase for some years past, and each has the capacity for further expansion, especially Formosa.

SHANTUNG (CHINA) MINING COMPANY.—The business of this company is progressing, turning out at the present time about 135,000 tons of coal per year. There are 2,000 Chinese employed at the main diggings, and their pay averages from 20 to 40 cents gold per day. They work in shifts of eight hours.

COAL TRADE OF MOJI.—The quantity of coal shipped to foreign countries from Moji during September was 58,146 tons, and that taken by foreign vessels for their own use 47,328 tons. The quantity of coal transported to home ports during the month was 65,430 tons, and that taken by Japanese vessels for their own use 36,177 tons. This is a total decrease of 12,016 tons from the returns for August.

TIN IN MINDANAO, P. I.—An American prospector claims to have struck a "mountain" of tin in the Island of Mindanao. Specimens of the ore have been assayed by the geologists of the Division of Mines, Bureau of Science, Manila, and are said to be rich in tin. The close proximity of Mindanao to the tin regions of Malaya should, it is believed, portend tin in quantity in that island.

COAL ON THE MONGOLIAN BORDER.—The Chinese Railways Company has discovered, on its property in the vicinity of Hsinminting, or rather just over the Mongolian border, a very rich bed of coal of almost pure carbon (*cannel*). It will be an easy matter to construct a branch line to the area, and just beyond there are known to be rich gold and copper resources. Possibly there are other minerals.

TAIYA IRON MINE.—This mine supplies iron ore to the Wakamatsu Foundry. Up to the month of September the quantity of ore sent to Japan was 110,000 tons, and it is expected that when the Hangyang Arsenal, now in course of enlargement, is completed, the demand of that industry combined with the demand of Japan will total 300,000 to 400,000 tons per month. Five steamers are now engaged in transporting the ore to Japan.

JAPAN'S MINING REVENUE.—The revenue of the Mining Bureau of the Japanese Government for the present fiscal year is expected to show an increase of -Y-300,000 over last year, when it amounted to -Y-2,-170,000. The authorities intend to increase the number of mine inspectors. It is stated that if this plan is carried out the receipts of the bureau will further increase the amount to -Y-2,900,000 or -Y-3,000,000.

ASBESTOS BEDS, NORTHERN LUZON, P. I.—Rich deposits of asbestos covering hundreds of acres and containing hundreds of thousands of tons of the mineral, have been located in the mountains of Northern Luzon. Samples of the asbestos have been examined in the Mining Division of the Bureau of Science and pronounced excellent in quality with not more than from 1 to 2 per cent of alloy. The deposits are inlaid between the layers of asbestos with talcum and silica, both valuable deposits, and the fields of asbestos are within a few miles of excellent harbors.

MINING INDUSTRY IN HOKKAIDO.—Since the termination of the war with Russia, the Japanese have revived the mining industry of Hokkaido to such an extent that the Mining Bureau of the Department of Agriculture and Commerce at Tokyo has become congested by the number of applications. Applications for permission to engage in prospecting cover 300,000,000 *tsubo* of territory, while those for the actual working of mines extend over some 110,000,000 *tsubo*. One *tsubo* equals four square yards. There is great variety in the character of mines. They are chiefly gold (quartz and placer), copper, coal and manganese.

OIL INDUSTRY OF BURMA.—The oil industry of Burma is growing rapidly. In 1896-7 the total imports of mineral oils into India from foreign countries were, roughly, 64,000,000 galls., while the exports of Burma oil from Rangoon coastwise were 40,000 galls. In 1905-6, the period ending March 31st, the foreign imports were 51,000,000 galls., while the Burma oil exported to India ports was 47,000,000 galls. In other words, in 10 years the Burma oil exported to the Indian market has increased over a thousandfold. Ten years ago the Burma oil exported to the Indian market was 1-1600 part of the foreign mineral oils received, while in the latter year under consideration the figures were nearly equal.

SHIPMENTS OF GOLD FROM AUSTRALIA.—There was a large increase in the shipments of gold from Australia from the beginning of the present year to July 31st, in comparison with those for the corresponding period of 1905, showing an increase of $23,428,275 gold. The shipments compare thus:—

	1905	1906
Melbourne	$ 2,734,992	$10,631,808
Sydney	5,916,997	15,191,188
Brisbane	8,760	———
Adelaide	54,748	875,970
Fremantle	13,321,946	18,766,752
Total	$22,037,443	$45,465,718

RUBY MONOPOLY, BURMA.—During the last year in Burma 1,773,129 trucks of ruby earth were washed, at an average of $1.50 gold per truck. This is less 130,000 trucks than were washed the year previous. This decrease is reported due to the working out of the Choungzone Mine. The output of this mine came from corners and crevices of the rock, which increased the cost of taking out the dirt. Work will soon begin at the Myntada Mine, which is very close to the Choungzone, and will use the same washing machinery without necessitating the removing of it. The royalties received by the Government from native miners during the year amount to $62,975 gold, which is about half what it was in 1904. There was a net profit for the year 1905-6 of about $40,000 gold, and a dividend of 12 cents a share was declared. But for the control held by a few persons over the ruby deposits of Burma, and the disposition to limit the output, rubies would be 50 per cent cheaper than they are on the market today. Burma coal-oil and ruby deposits are held in the tight fist of monopoly, and it looks as if no power would be able to break it.

FEDERATED MALAY STATES TIN.—The following statistics of the tin output from January to July, 1906, inclusive, are published by the Mines Department of the Federated Malay States:—

OUTPUT IN PICULS

Perak	258,277.75	250,060.34
Selangor	170,214.95	154,004.05
Negri Sembilan	48,742.06	44,796.08
Pahang	18,861.01	19,320.86

DUTY IN DOLLARS

Perak	2,751,956.62	2,959,823.45
Selangor	1,838,188.72	1,825,327.79
Negri Sembilan	526,656.58	532,812.33
Pahang	125,714.18	48,617.43

INCREASE OF OUTPUT AND DUTY

Perak	——— piculs	$207,866.83
Selangor	——— piculs	———
Negri Sembilan	——— piculs	6,155.75
Pahang	459.85 piculs	22,903.25

DECREASE OF OUTPUT AND DUTY

Perak	8,217.41 piculs	$———
Selangor	16,210.90 piculs	12,860.93
Negri Sembilan	3,945.98 piculs	———
Pahang	——— piculs	———

SUMMARY OF OUTPUT AND DUTY

7 months 1905	496,095.77 piculs	$5,242,516.10
7 months 1906	468,181.33 piculs	5,466,581.00
A decrease of	27,914.44 piculs	———
An increase of	——— piculs	224,064.90

FINANCIAL AND MISCELLANEOUS

AMERICAN CONSULATE AT KIAOCHOW.—An American Consulate has been opened at Kiaochow, China.

HOKKAIDO COLONIAL BANK.—This bank has decided to increase its capital from -Y-3,000,000 to -Y-5,000,000.

TOBU RAILWAY COMPANY.—This company has notified the issue of a loan of -Y-1,500,000 at 6 per cent *per annum*.

HIOGO GAS COMPANY, LTD., KOBE.—This foreign concern has disposed of its business to the Kobé Gas Company, Ltd., a Japanese company.

SUGAR REFINERIES AMALGAMATE.—The Japan Sugar Refinery Company and the Osaka Sugar Refinery Company have amalgamated their business.

COINAGE IN JAPAN.—During September -Y-20 gold pieces to the amount of -Y-4,900,000 and 20-*sen* silver pieces to the value of -Y-990,601 were struck at the Osaka Mint.

JAPAN SHARE MARKET.—The share market of Japan is again very active, spinning and other stocks generally rising. This activity is ascribed to the depression in the demand for money.

ARNHOLD, KARBERG & CO.—It is announced that Messrs. Arnhold, Karberg & Co. have removed the offices of their Berlin branch from 75, Unter der Linden, to No. 7, in the same street.

EX-SEOUL-FUSAN RAILWAY COMPANY.—At a recent general meeting of the shareholders of the ex-Seoul-Fusan Railway Company, held in Tokyo, a dividend at the rate of 6 per cent *per annum* was declared.

FIXED BANK DEPOSITS, JAPAN.—The leading banks of Osaka and Kobé have agreed to lower the interest on fixed deposits to 5 per cent. Interest on current and special currency amounts remains unchanged.

PROPOSED SUGAR MONOPOLY, JAPAN.—It is reported that the Department of Finance at Tokyo has decided to abandon the proposed scheme of making the sugar refinery industry of Japan a Government monopoly.

OSAKA SUGAR REFINING COMPANY.—The directors of the Osaka Sugar Refining Company have resigned in a body in consequence of the disagreement with shareholders regarding the heavy loss sustained on the last half year's working.

HONAN-NINGPO RAILWAY.—The Honan-Ningpo Railway has decided to raise a domestic loan by October next year, and repay the £700,000 which was defrayed by the British-Chinese Corporation for the construction of the line.

ARTESIAN WELL TOWERS AND TANKS, BANGKOK.—Messrs. Howarth Erskine, Ltd., of Singapore have received orders from the Siam Government for the construction of two steel towers with tanks, to be erected over artesian bores at Bangkok.

CHINESE EMIGRATION TO CANADA.—The $500 gold Canadian tax on Chinese immigrants is causing a scarcity of unskilled labor at Victoria, B. C. The salmon canners there are petitioning for a reduced head tax, in order to permit Chinese to enter the province.

JAPAN'S BAMBOO TRADE.—The Japanese foreign trade in bamboo and bamboo work, particularly with the United States, has been extremely active during the last three months, large orders being placed at prices considerably higher than those of a year ago.

BRITISH MAILS TO HONGKONG.—The Canadian Pacific Railway Company is boasting that it has accomplished the feat of landing British mails in Hongkong in 29 days from their dispatch from London, or nearly a week less than the previous record.

HONGKONG GOVERNMENT'S TYPHOON LOSSES.—It is estimated that the damages suffered by the Government of Hongkong during the recent typhoon will amount to at least $125,000. This is a very small amount as compared with the damages sustained by private firms and individuals in the colony.

HOKKAIDO HEMP COMPANY.—This company has increased its capital from -Y-1,200,000 to -Y-2,400,000, for the purpose of improving the looms of its manufactory and establishing factories in the vicinity of Tokyo. The new shares will be distributed among the present stockholders *pro rata*.

KOBU RAILWAY TRANSFER.—A general meeting of the Kobu Railway was held recently at Tokyo, and the chairman announced that the price of the transfer of the line to the Government was roughly estimated at -Y-13,200,000. The directors were appointed to be administrators after the nationalization of the railway.

RUBBER PROMOTION, MALAYA.—A company has been founded at Amsterdam with a capital of 3,000,000 Dutch gulden, to undertake the cultivation of rubber in the Malay Peninsula. The name is *La Société Anonyme des Plantations réunies d'Hevea des Terres de Bila*, and the promoters are the Banque de L'Union Parisienne.

OTARU LUMBER COMPANY.—At the organization meeting of this company in Tokyo, Baron Shibusawa, the chairman, nominated the following directors and auditors:—Directors, Messrs. S. Tanaka (Managing), K. Okura, C. Uyemura, T. Hayakawa and K. Yamashita; auditors, Messrs. Asaba, W. Sekiya and C. Matsumoto.

SUMATRA AND BORNEO TOBACCO.—The import of Sumatra tobacco into the United States for the first seven months of the current year amounts to 28,033 bales against 29,394 in 1905, and 27,565 in 1904. A noteworthy feature of Borneo's tobacco trade for the same period was the purchase of her tobacco for the first time in America.

TOBACCO CROP OF JAPAN.—The weather in Japan has been very favorable for the tobacco crop this year and the growth of the plants is very satisfactory throughout the empire. The total harvest is estimated at 12,839,980 *kwamme*, or 106,571,800 lbs., and the net profit to the Government monopoly office -Y-32,000,000, or approximately $16,000,000 gold.

FAR EASTERN ENGINEERING, CONSTRUCTION, COMMERCIAL AND FINANCIAL NEWS

ELECTRIC RAILWAYS, LIGHTING, POWER, ETC.

PENANG ELECTRIC TRAMWAYS.—The Penang tramways are estimated to earn $73,000 during 1907.

LIGHTING SYSTEM FOR FOOCHOW.—There is a movement on foot at Foochow, China, looking to the organization of an electric lighting company to supply about 5,000 lights.

DOUBLE RAILWAY TELEGRAPH LINE, S. S.—The Railway Department of the Government of the Federated Malay States has taken the first step towards the construction of a double telegraph line from Singapore to Penang, and the whole work will, it is estimated, be completed and the line in working order before the end of next year.

TELEPHONE SYSTEM AT BANGKOK.—The American Minister to Siam writes:—"The present system of telephones has proved unsatisfactory in the City of Bangkok and a change has been decided upon. The plans, specifications and estimates are now completed, having been prepared by Henry W. Wilder, of New York, and are in the hands of the Post and Telegraph Department awaiting examination preparatory to the Government appropriation necessary for the work. It is estimated that the cost will be in the neighborhood of $50,000 gold. The contract will be let by the Public Works Department. The open tender is rapidly gaining favor in Siam. It is proving most satisfactory in the Royal Railway Department, and is being applied to both army and navy contracts with good results. There is little doubt, therefore, that this contract will be let by open tender also."

ELECTRICAL SCHEMES IN JAPAN.—An extensive scheme is under consideration to furnish electricity to Osaka and Kyoto. The power-house is to be established at a village about 28 miles distant from Osaka and about 8 miles from Kyoto, where water-power is available to the extent of over 45,000 h. p. The electrification of the Naikai Railway is in progress. The company own an interurban steam railway 40 miles long, 9½ miles of which are double track. This line taps a number of popular resorts, and the traffic is increasing along with the completion of the electrification of the service, which is at present limited to the double-track section. The company's generating station is situated at Sumiyoshi, some distance outside the city of Osaka. Another scheme of electric tramways has been considered and decided upon by the Osaka City authorities, who intend to spend ¥2,000,000 on a complete electric tramway service for the city and district. A project for an electric railway between Osaka and Kyoto is also contemplated, the capital being £200,000. The line will run through a fairly populous district not at present provided with railway facilities. It is considered that the concessions recently granted to private enterprise for the construction of electric railways and tramways will be the last of such concessions, as the Japanese State Railway Department and the municipalities of the various cities are disposed to retain this branch of industrial enterprise in their own hands.

RAILROADS AND RAILWAY SUPPLIES

JAPAN'S 15-YEAR RAILWAY PROGRAM.—The total expenditure for carrying out the 15-year program of the railway construction and improvement of the Japanese Government is estimated at $200,000,000 gold, of which $175,000,000 are for construction and the balance for improvement work.

NEW RAILWAY FOR JAPAN.—A new railroad is being built in Japan to connect the southern portion of the Island of Kyushu with the railway system of the empire. The new line involves some engineering difficulties in the spanning of a river and the construction of the Yadake Tunnel, 6,883' long.

YUNNAN (CHINA) RAILWAY.—Work on this now famous line is progressing. Even the enormous difficulties of the deadly Namti Valley are being overcome, according to the *South-China Morning Post*. The loss of life among the laborers is being reduced to a minimum through the medium of general health and sanitation regulations.

HOKKAIDO RAILWAY TRAFFIC.—The transport capacity of the railways in Hokkaido is reported to be inadequate to cope with the abundant agricultural crops, and the production of enormous quantities of timber and coal. The Hokkaido Government is pressing the Railway Traffic and Communications Department to adopt measures to improve the situation.

SEOUL-FUSAN RAILWAY, KOREA.—The repairs of this line are to cost, it is estimated, ¥-1,500,000, which appropriation having been made by the Japanese Government, work will be commenced at once. The damages that have to be made good were caused by floods and it is said that the plan of repair is calculated to avert such happenings in future. In other words, the repairs amount to about the same as reconstruction.

CHEKIANG RAILWAY.—A Chinese engineer, with a staff of 14 assistants, has begun the survey of the proposed railway between Hangchow and Chiahsing, part of the Chekiang line. The work on the short line between Chiangkan, on the Tsientang River, and Kungchen Bridge, the new foreign settlement at Hangchow, is in charge of the engineer-in-chief of the Chekiang Railway, Mr. Chang K'ehming.

CANTON RAILWAY.—The Canton Railway Administration had intended to employ an American engineer recommended by Sir Cheng-tung Liang Cheng, Chinese minister at Washington, but as the majority of the shareholders of the railway maintained that the line having been redeemed from American concessionaires no more foreign engineers should be employed, the director-general of the railway telegraphed to the Chinese minister to cancel the offer of employing the American engineer.

SOUTH MANCHURIAN RAILWAY'S NORTHERN TERMINUS.—Major-General Nakamura, Mr. Furukawa, the railway engineer, and Mr Hagiwara, Japanese Consul-general at Mukden, have been appointed the Japanese commissioners for the settlement of the question of the northern terminus of the South Manchurian Railway. The Russian Government's commissioners are to be Prince Khilkoff, Vicepresident of the Chinese Eastern Railway Company, the Russian diplomatic agent at Harbin, and a third party who has not yet been appointed. There is a dispute as to whether Changchun Station shall be regarded as coming within the Japanese part of the line.

SWATOW-CHOWCHOWFU RAILWAY.—The completed railway from Swatow to Chowchowfu, 28 miles in length and leading due north from Swatow, has been formally opened to traffic. Actually the road is not completed at the Swatow end yet, the idea being to lay the rails right to the wharves. Before this can be done, however, a creek will have to be bridged. Traffic over that portion of the line just opened is said to amount to $2,000 per day. The railway is interesting as being the first to be constructed by Chinese under Japanese engineers. It is destined to eventually connect with the Canton Hankow Railway.

JOHORE STATE RAILWAY, MALAYA.—The construction work in this line is now well in hand so far as the 40-mile post, while from the Gemas end the progress is even better. Rails in a short time will have reached Rentau Panjang, or 20 miles from Gemas, from which point construction work started only a little more than a year ago. Earthwork and bridges are in course of construction, right away to the Sekoe River, 50 miles from Gemas. A gap of 30 miles remains to be started on. At Suloh Kesap (12th mile), a little town has sprung up, due, it is claimed, to the large labor force which has been engaged on the building of the bridge over the Muar River, which has lately been completed. This bridge is said to be quite a handsome structure. A smaller bridge spans the Segamat River at Rentau Panjang, which also is growing apace.

KOWLOON-CANTON RAILWAY.—Following is an extract of the more important points of the agreement for the loan for the proposed Kowloon-Canton Railway: —(1) The loan to be £1,500,000 guaranteed by a mortgage of the Kowloon-Canton Railway; (2) £94 to be paid for every £100; (3) interest on same to be at the rate of 5 per cent *per annum*, same to commence on date of signing of the bonds; (4) a single track to be constructed, but the roadbed to be widened so as to be prepared for the construction of a double track; (5) work on the road to be started within eight months, failing which the agreement will be annulled; (6) the head office of the proposed railway to be in Canton, the Viceroy of Kuangtung and Kuangsi to appoint a director who shall be assisted by a British engineer-in-chief and a British manager; (7) the staff of the company to receive £38,400 as remuneration during the time agreed upon for the construction of the railway, the said sum being the commission for the purchase of materials; (8) the sum of £1,000 to be paid the company each year, payment of which will cease upon repayment of the whole loan; (9) the loan to be for 50 years, interest only on same to be paid for the space of 12½ years after which both principal and interest to be paid in installments; (10) the viceroy of the Two Kuang provinces will arrange separate terms with regard to the joining together of the Canton line to that of the Kowloon line.

SUMATRA STATES RAILWAY.—The 1905 report of the Sumatra States Railway and the Ombilien coal mines has just been issued in Amsterdam. The length of the railway remained at 210,184 kilometres. For new works fl 76,260 was spent, so that the construction account in December, 1905, shows an amount of fl.21,111,079. The total working receipts were fl.1,462,-023, and the total expenses fl 973,128, leaving a balance of fl.478,894. The carriage of passengers realised fl 12,000 less than in the preceding year; on the other hand, the carriage of goods total is increased by fl 18,000 for coal and fl 68,000 for other goods, so that the total receipts were fl 52,842, higher than in 1904. The increased carriage of goods is due to the import of rice, necessitated by the failure of the crop in those districts which the railway traverses, while the passenger decrease is doubtless also connected with the crop failure. The balance is larger by fl 155,477, but only fl 62,092 was paid for repairs, against fl.157,443 in 1904. The output of the Ombilien mines amounted to 221,416 tons, including 9,640 tons for own consumption—a figure not taken into account in former annual reports. Compared with the previous year, the quantity of coal forwarded from Sawah Loento showed an increase of 4,028 tons. Smaller sales at the Emma Harbor is due to the reduced requirements of the Rotterdam Lloyd and Netherlands steamers in the harbor, but the quantity rose again towards the close of the year. At that time the available stock of coal was 1,508,500 tons. Twenty foreign steamers touched at the harbor, against 22 in 1904. The number of compulsory laborers was 705, and that of contract laborers 2,415. The cost of enlisting, feeding, etc., amounted to fl 215,191, against fl.243,-353 in the preceding year. The total figures of the working of the mines was fl.2,254,265. If expenses are deducted, the net amount is fl.1,047,046, for which 221,416 tons are delivered, so that the cost of working is fl 4.72, against fl.5.65 in 1904. The receipts were fl.2,170,698, including fl 1,744,567 for coal delivered to various branches of the Government service, and fl.726 131 for supplies to private persons. The latter amount is less than that of 1904, owing to a large quantity of Cardiff coal, which was destined for the Russian Navy but not taken, and by which the Indian market was for a time overstocked. The balance of the account is fl.1.5 892, and after writing off a profit is booked of fl 13,984. If the results of the two undertakings are combined, the profit is fl.492,897, or more than 2 10 per cent. on the invested capital of fl 23,394.510, against 1 71 per cent. in 1904 and 3.11 per cent. in 1903.

PUBLIC AND PORT WORKS, DOCKS, WHARVES, ETC.

FLOATING DOCK FOR KOBÉ.—It is hoped and expected that the floating dock to be built in England for Kobé Harbor will be in position in two years.

NEW RUSSIAN MUNICIPAL BUILDINGS, TIENTSIN.—A very handsome and convenient range of municipal offices, etc., was recently formally opened in the Russian Municipal Concession of Tientsin. These offices were erected at a minimum cost of Tls. 30,000.

WATER SUPPLY FOR FUSAN, KOREA.—The Japanese settlement at Fusan has decided to obtain a water supply. For that purpose $590,000, gold, is to be raised abroad through the agency of the Industrial Bank of Japan. The enterprise will be jointly undertaken by the Municipality of Fusan and the Korean Government.

OMUTA (JAPAN) HARBOR WORKS.—The work of improving the harbor accommodations at Omatu, overtaken by the firm of Messrs. Mitsui & Co., is rapidly nearing completion, and it is anticipated that this port will be available for shipping early in 1907. The opening of Omuta to foreign trade is predicted to result in drawing a large amount of shipping away from the neighboring ports of Misumi, Kuchinotsu and Moji.

OLD DOCK PROPERTY, SHANGHAI.—At a recent meeting of the shareholders of the Shanghai Dock and Engineering Company, Ltd., the amended resolution, carried at a previous meeting for the sale of the company's Old Dock, was confirmed by a vote of 23,238 shares against 2,723 shares. By this resolution the directors are authorized to dispose of the property known as the Old Dock, situated in Hongkew, and of part of the property situated between the Cosmopolitan and International docks, to a limited company incorporated under the Hongkong Ordinances with a capital of Tls. 1,880,000.

SHIPBUILDING AND GENERAL MARITIME MATTERS

OIL FUEL FOR JAPANESE STEAMERS.—Consul C. B. Harris, of Nagasaki, confirms the report that Nagasaki shipyards have contracted to build for the Toyo Kisen Kaisha (Eastern Steamship Company), of Tokyo, for use on its Hongkong-San Francisco line two sister ships, each of 13,000 tons, gross, and that the vessels will be fitted to use oil for fuel. He is also informed that that company's three vessels, the *America-maru*, *Nippon-maru* and *Honykong maru*, each of 6 000 gross tonnage, now plying between the ports named, will be fitted to burn the same fuel.

NIPPON YUSEN KAISHA.—The *Japan Chronicle* says that 14 new ships are being built for the Nippon Yusen Kaisha, of which number three are under construction in England—two being vessels of 2,500 tons each, and the other of 2,000 tons. These three are intended for the Shanghai line; and five others, four of 3,500 tons each and one of 8,600 tons, are being built by Kawasaki Dockyard Company, Ltd., of Kobé. Another five ships, four of 8,600 tons each, and one of 6,500 tons, are being built at the Mitsu Bishi Yards, Nagasaki. Of the boats being built at the Kawasaki yard two, and four other ships are intended for the European line. The vessels of 8,500 tons in the hands of the Kawasaki yard are for the Yangtsze River line.

REPAIRS FOR THE "MANCHURIA" AND "MONGOLIA."—According to *The London and China Express*, estimates of repairs for the two vessels of the Pacific Mail Steamship Company, lately ashore, show that in the case of the *Manchuria* permanent repairs will probably cost about $300,000 gold, and those of the *Mongolia* about $150,000. A curious result of the disasters is that as both vessels are at San Francisco, and there is only one dock at the port capable of taking a steamer of their size, the *Mongolia* is being repaired temporarily so that she may be fit to resume her service until the *Manchuria's* repairs are completed. The *Manchuria* will be kept out of the service for about seven months, which, of course, involves her owners in additional heavy losses. The permanent repairs to the *Mongolia* will require about four months.

MINING, MINERALS AND THE METAL TRADE

PENANG FOUNDRY.—The creditors of penang (S. S.) Foundry have thrown the company into voluntary liquidation.

COAL IN MANCHURIA.—Although there are abundant coal deposits in Manchuria, according to an American consular report the price of this fuel still remains abnormally high, averaging from $6 50 to $8.50 gold per ton for common grades.

to any location where the light spread footing may be constructed. The satisfactory fish-belly type leads the way to a form of open truss construction of some promise.

Methods.—The necessity of the bridge being determined, the survey of site indicates the type and size of structure. Arch ribs falsework are marked out full size on the work. Bridge reinforcing is effected over tops of piles when material between piles is compressible. Concrete is made to a "wet" mixture although the ratio of 12 to 11 is in favor of the dry concrete, the ease of depositing and the good contact with reinforcing obtained make the wet mixture preferable. Vertical reinforcing for the wing walls and high abutments, and first reinforcement for arch ring are bedded in the sub-foundation and aligned. Concrete work on arch ring is continued without stop until finished (a small night gang keeping the concrete line fresh), placing vertical reinforcing for spandrel walls. In arches under 30′ span, falsework has been removed in all cases within two weeks, without damage. Curved, in place of angular, wing walls add practically nothing to the cost and present a better appearance. The same may be said of the open balustrade. All walls or surfaces locking in or tending to retain water, as at springing points of arches, must be drained by proper openings.

In arches over 30′ span, the centers should be left in from 30 to 60 days and the wet spandrel fill should be made before removing centers.

CEMENT IN FAVOR IN INDIA

A great deal of cement is used in India in building operations. Portland cement is considered the best and is used for all particular work. It is used in laying brick walls in foundations, and wherever wood is used for structural purposes it is laid in cement whenever possible. Floors, moldings, cornices, and outside and inside trimmings are made of sand and cement. Wherever cement can be used to guard against vermin, especially white ants, it is freely used. Houses that have flat roofs are covered with brick dust and particles of brick mixed with cement and stamped down hard. Pitched roofs are covered with corrugated iron or tile and then solidly covered with cement and sand. These roofs last well and require little repair. Artificial stone is extensively manufactured and used in India for building purposes and for pavements and walks. Floors are laid in cement and made ornamental by embedding broken glass and china in figures in the body of the cement. The outsides of temples are made in the same way and are very attractive. Thus cement is in general use and always will be in India. The imports of cement as long ago as 1870 were valued at $50,342 gold, advancing in the fiscal year 1900 to 729,478 hundredweight, valued at $500,332, and in 1906 to 1,778,428 hundredweight, valued at $1,070,275. The imports of cement for the first four months of the present calendar year were 574,006 hundredweight, valued at $333,427. The supplies of cement for India come mainly from the United States, the United Kingdom, Belgium, and Germany. Inferior cement is not wanted, but the best cement is in good demand at good prices.

ENGINEERING COMPANY'S PROGRESS IN NORTH CHINA

Regarding the affairs of the Chinese Engineering and Mining Company, Ltd., at Chingwangtao, which seem to be progressing most favorably, there is, in addition to the completion of the extension of the breakwater to 2,300′ and the work of replacing the jarrah piles of the pier by iron joists, which is now completed, the construction of a second chord quay in progress and a new berth of 300′ long has been constructed for the use of the steamer *Kaiping*. In speaking of Chingwangtao at the annual meeting, the chairman of the directory said:—

"The depth of water alongside this new berth is 19′ at low water of ordinary winter and spring tides. The stone buildings, each 100′ long by 45′ wide, have been constructed to provide quarters for 600 coolies. A brick godown, 600′ long by 45′ wide, was also constructed for storing cargo for steamers, besides smaller godowns. It may be mentioned, as indicating the increasing importance of the port, that several influential firms have already established themselves there, and a village of 2,000 inhabitants has sprung up within the last two years to the north of our coal yard, close to the boundary of the company's land. We are advised that the facility with which steamers can now be loaded and discharged at our breakwater and pier will bear comparison with any port in the Far East, and is superior to most. Last winter was one of unusual difficulty for steamers coming to the port, owing to the exceptional severity of the frost and the absence of the wind required to break up the ice; but although the ice extended for a considerable distance from the pier, it was never sufficient to prevent the ships from getting through. Our general manager writes that he looks upon the prospects of Chingwangtao as very satisfactory, and is confident that within a very short time further considerable development in the value of the port, as well as in the trade of the port, will be seen. We told you at the last meeting that the important question before us was the increase of our output, and that was mainly a question of dealing with the water in the Tongshan and Linsi mines. From the commencement of our company it has been recognized that a large part of the mechanical installations of the collieries left much to be desired on the score of efficiency. One consequence of this has been an excessive consumption of fuel at the mines. Our pumping appliances, particularly, have been a source of trouble, requiring as they have done, frequent repair; and, while they have hitherto served our purpose, they are quite inadequate to the task which will be imposed on them in view of the large increase which we propose to make in the output, and the necessity of guarding against the possibility of an inundation of any portion of the mines. Reserves of coal are known to exist in the Tongshan mine, which hitherto could not be worked for fear of causing a flow of water with which our pumping installation would not be able to cope. The installations for lighting and ventilation are also defective and insufficient for our contemplated scale of operations. In order to deal with all these matters, after prolonged investigation, we adopted a scheme for the construction of electrical stations at each of the mines of Tongshan and Linsi, these stations to furnish the power necessary for the pumping and the various other underground and surface installations on such a scale as to provide for the increase in the near future of the present production of about 3,000 tons per day up to 5,000 tons per day or more. In the months of November and January last, contracts were entered into for the necessary plant, which has been in course of erection for some time past. The buildings for the power stations are nearly completed. The contracts require that the pumping plant at Tongshan shall be in operation by November 8th, 1906, and that at Linsi a month later. The remainder of the accessory installations are to be completed in February next. The power-station at Tongshan will be capable of developing 3,200 h. p. and that at Linsi 4,800 h. p. The pumps are calculated to deal with all the water that may be expected after the full extension of the scale of our operations, and to leave an ample margin. The electrical stations will also be able to supply, later on, the necessary power for electrical traction in the interior of the mines, and thus enable us to replace the present mule transport, which is defective and costly. They will also provide power for the winches for the inclined planes, the secondary pumps; in a word, for the whole of the installations underground and at the surface. At present everything points to the contractors completing the works within the specified time. In order to obtain the increase of production, of which I have just spoken, it is necessary to enlarge, to deepen, and to reequip a pit at present existing at Linsi. At this shaft we have decided to establish mechanical screening, so as to permit of the coal being cleaned and classified, and thus provide for the various demands of the market. The amount of capital expenditure involved in the works which I have referred to will, of course, be very large; but we are glad to say that our financial condition is such that we are in position to meet all requirements. Now as regards the results of the current year; so far as we have gone they are eminently satisfactory. There has been an increase in the output of about 90,000 tons and an increase in the proceeds of the sales of about $300,000. All our information tends to show that we may expect a continuance of this state of things during the remainder of the year and a corresponding increase of profit. In conclusion, I think we may safely say that our enterprise is to-day in a stronger and healthier condition than it has ever been. As you have already heard, there is now a much larger demand for our coal than we have hitherto been able to meet. The works which we have undertaken, and which are now nearing completion, will not only place us in a position to meet this demand, but should also enable us to diminish to some extent the cost of production, and with these facts before us we are justified in looking forward to a steady expansion in the profits of the company, and, consequently, in due time, to an increase in the dividends."

Referring to the Tongshan Cement Company the chairman stated that the assets were not included in the balance sheet, but that the company's position in regard to this was that they were creditors, and that the figure at which the debts stood on the books was one which was quite satisfactory to the company.

On the whole the report of the company is very encouraging, and the business in a very thriving condition. The shares of the company have advanced and have been sold at Tls. 10.60 in fairly large quantities. Most of the shares bought lately were to supply the London market.

RAILWAY BUILDING IN CHINA

Brief mention has already been made in these columns, from time to time, of the dangers from disease and the difficulties of various kinds confronting the builders of the railway that is to pass through the Namti Valley in China. Now comes a report covering this same subject, issued by the Imperial Chinese Customs authorities of Mengtse. Consul T. Haynes, of Nanking, has forwarded it to Washington with the observation that it would seem as if China has her hands full of evils not unlike those encountered upon the Isthmus of Panama. The report of the Imperial Customs authorities is as follows:—

"The construction of the railway between Laokai and Yunnanfu (the great enterprise to which all well-wishers of Yunnan look forward as one of the means of permitting this province to take her proper place in the markets of the world) has been perseveringly pushed forward in the face of great difficulties both climatic and economic. The vile climate of the Namti Valley has levied a heavy toll on those who have dared to open up its primeval jungles and gullies. The death rate among the coolies imported from various parts of the Empire and put to work in this dreaded valley, may, without exaggeration, be estimated at 5,000, or 70 per cent of the total number employed on that particular section of the line. The company has made praiseworthy efforts to counteract the evils of the climate in this valley. They have constructed a large number of suitable dwellings both for foreigners and natives, and have doubled the number of hospitals, placing as many as seven doctors on the first 150 kilometers from Hokou. Instead of attempting to carry on the work in the Namti Valley all the year through the work is suspended almost entirely during the summer rains and the coolies moved up to the works on the high and healthier plateau. This measure, while it economizes the life of that most important individual in the building of any railway, namely, the coolie, must considerably delay the completion of the line, and we must therefore wait till 1910 at least for that great desideratum—the linking up of Yunnanfu with Haiphong. The year under review marks an important epoch in the history of French railway enterprise in Indo-China. On Christmas day the first locomotive reached Laokai on the Tonking Yunnan border, and it is hoped that the coming spring will see the commencement of a through railway service between Haiphong and Laokai."

FIGHT AGAINST THE SUGAR INDUSTRY OF THE PHILIPPINES

[*In an address at the recent banquet of the National Association of Manufacturers, held in New York City, Mr. William H. Taft, Secretary of War and formerly Civil Governor of the Philippine Islands, made a strong plea in favor of fair commercial treatment of these possessions by the home country. Extracts of this address are reproduced herewith, together with our own analogous observations.*—EDITOR'S NOTE.]

Recurring to the special interests that are opposing the Philippine Tariff Bill, they are, first, those interests that are raising and manufacturing sugar in this country, and I am going to ask you to go into a few statistics with me upon the subject of the consumption and the production of sugar in this country and in the Philippines, because without doing that you can not understand the question.—*Secretary Taft*

A trust capitalized at $20,000,000 gold is at present being formed by the Louisiana sugar planters and manufacturers, with one of the Oxnards as an incorporator, according to a recent issue of *The Louisiana Planter and Sugar Manufacturer*. This means nothing more nor less than a merger with the American Sugar Refining Company. Already the beet-sugar factories have gone into the trust, and now the cane-sugar interests of Louisiana are taking the same step. So all the sugar interests of the United States are coming under one head—the American Sugar Trust. Of course this trust will continue to fight the reduction of duties on Philippine products, where the friends of the trust are most numerous, in the Senate of the Congress at Washington. It would certainly seem about time for the Administration to rebuke this huge combination, to the extent, at least, of placing it in a position where its fight against the removal of the duties on the products of these Islands

The demand in this country for sugar amounts to 2,700,000 tons *per annum*, and we raise in this country, including Porto Rico, and Hawaii, and Louisiana, and the beet-sugar production, 1,100,000 tons, of which 300,000, or exactly 265,000 tons, are produced by the beet-sugar manufacturers. Now, that leaves to come off the tariff wall, 1,600,000 tons of sugar, and we exported from the Philippines last (1905) year 100,000 tons to everywhere, and half of it came here. Now, of that 1,600,000 tons, about 1,000,000 tons came from Cuba and paid a duty of 20 per cent less than the Dingley Tariff. Fifty thousand tons came the same year from the Philippines, and paid a duty 25 per cent less than the Dingley rate, and 450,000 tons of Java, paying the full Dingley rate; 100,000 tons came from the West Indies and other islands, paying the full Dingley rate. Now, it is not necessary for me to explain to intelligent business men, men of affairs, that what will affect the producer of sugar in this country is the reduction of price. That is the first proposition. Secondly, it is not necessary for me to explain that the price of sugar in this country, as long as we have to import sugar and bring it over the tariff wall, is fixed by what it costs to import the sugar into this country. And it follows that as long as we have to import sugar and bring it over the tariff wall at the full Dingley rates, the introduction of sugar from the Philippine Islands can not affect the price at all. All that it will do will be to substitute it for sugar that now pays the full Dingley rate, or that pays 20 per cent off the Dingley rate, and that is all.—*Secretary Taft.*

Consumption of sugar the past (1906) year in the United States, while official figures are not yet at hand, is known to have been larger than ever before. The beet-sugar lobbyists last spring at Washington claimed that the quantity of sugar going into the United States paying the full rate of duty, would be cut down to 100,000 or 200,000 tons in 1906; and to nothing in 1907. As a matter of fact, it will be shown to have been much nearer 1,000,000 tons of full-duty sugar entering the home country in 1906 than it was 100,000 tons. The sugar people invariably calculated on phenomenal increases in consumption. The United States has for 50 years or more, increased her consumption much faster than her production and in all probability will continue to do so. The American beet-sugar production will prove larger in 1906 than ever before. The Louisiana cane crop, however, will be shorter than for some years. The decrease from Louisiana will hardly be made good by the increase in the beet production. In the meantime consumption of sugar in the United States is growing enormously, being much larger last (1906) year than was ever the case before. Instead of the United States growing in production so as to supply her own needs of sugar, the requirements from the outside are increasing constantly in spite of the addition of sugar-growing colonies such as Hawaii and Porto Rico. If the sugar of the Philippine Islands were also admitted free, the same condition would continue—the consumption would grow faster than the production, and no sugar-grower in the homeland would be hurt.

In other words, all we are asking for the Philippines is an opportunity, with the beet-sugar men and the Louisiana sugar men, to share the opportunity to get at that 1,600,000 tons that now come over the tariff wall. We would like to have an opportunity to furnish part of that, at the price that is paid in this market for sugar. Now, the objection made is that the Philippine Islands have such capacity for producing sugar that the minute you let them into this market, the 1,600,000 tons of sugar that we now import will be produced in the Philippines. In other words, the production of sugar in the Philippines must increase 16 times before it can affect the price of sugar in this market to the detriment of those who are now manufacturing sugar and selling it behind the tariff wall. Now, I ask if that remote contingency of a growth of 16 times in an industry in the Philippines is not a dream of something so remote that it ought to be disregarded altogether in the question of doing justice to the Philippine Islands.—*Secretary Taft.*

The Philippine sugar production virtually continues at a standstill. Production has gone up from about 100,000 tons of sugar to 125,000 tons in a few years, but it must be remembered that this sugar is of so low a grade as to be worth no more to the refiner than 80,000 or 90,000 tons of 96 degree sugar now turned out by all the up-to-date sugar countries. It is too early yet to predict what the present crop will amount to, though it is known that the smaller part of the crop grown on the Island of Luzon is quite poor; and there is, unfortunately, no sign of improvement in the general sugar business elsewhere throughout the Islands. No new machinery is going in except of the same kind as the old, which is constantly wearing out. Three-roller mills and open castiron kettles for boiling are universal, as has been the condition in the Islands ever since the commencement of the industry. The molasses is all cooked down nearly dry with the sugar, so the product must of necessity be of very low grade and of unsatisfactory value. Yet the sugar industry of the Islands and its prospects continue to scare the wits out of the sugar people of the United States.

You will hear a great deal said about the labor in the Philippine Islands and the cheapness of it. If you had to do with that labor I think you would find it was not so cheap as the *per diem* represents. Those people have not been taught to labor. That is one of the things we have to do. The minute that the sugar industry is increased, the wages increase. Our coming into the Philippines has more than doubled, and in some cases trebled, the price of labor there. The sugar industry in the Philippines is in a deplorable condition. Sugar is not being raised and rice is being grown instead of sugar. Now, I ask those to whom I address these remarks to use their influence in favor of doing something which is simple justice to the Philippine sugar planter and which is no injury to any interest of the United States.—*Secretary Taft.*

The mission of Commissioner Judd, representing the Hawaii Sugar Planters' Association, to recruit laborers in the Philippine Islands for the canefields of Hawaii, is acknowledged by the Honolulu papers to have proved a signal failure. Mr. Judd spent several months in the Philippines, and finally left the Islands with about 14 Filipino laborers. The native laborer has never up to this time shown much enterprise in the way of hunting for work or business opportunities. The Filipinos as a whole have never done much from a business or industrial standpoint. There extreme timidity is aptly illustrated by the fact that populous communities live from year to year on land owned by others and pay about two-thirds of all the crops grown to landlords, while within 10 miles in any direction may be found thousands of acres of public land of much better quality than that which they are cultivating which the Government is unable to induce them to homestead and occupy free. Our sugar and tobacco friends in the United States need not have such violent frights about the Filipinos flooding the home markets with sugar and tobacco for a few generations to come.

BRITISH AND CHINESE CORPORATION, LIMITED

At the recent annual meeting of the British and Chinese Corporation, Ltd., in London, Mr. W. Keswick, M. P., presided.

According to *The London and China Express*, the chairman, in moving the adoption of the report of the directors, said that during the past fiscal year the corporation issued no railway loans for the Chinese Government, and, making allowance for this fact, the financial result might be regarded as not wholly unsatisfactory. The construction of the Sbanghai-Nanking Railway was making good progress. About 80 miles were open for traffic, 20 miles more would be opened early in the present (1907) year, and the rest of the work was so advanced that the consulting engineers (Sir John Wolfe Barry and Mr. A. J. Barry) anticipated that the entire railway would be finished by June, 1908. If a perfectly free hand had been accorded to the corporation it could have accelerated construction considerably, with the double advantage to the Chinese of a saving in cost and interest and the securing of traffic at an early date. In the present state of things in China, however, this had not been possible, and the consequence was that there had been much loss of time. Taking this circumstance into account, satisfactory progress was being made, and the railway was being constructed in every way as a first-class trunk line of standard gauge, equipped with the best type of modern rolling-stock, and the cost was moderate. Before long it would be necessary to provide funds to complete the line, and the Chinese had accepted their offer for a further installment of the loan which would be issued in due course. The board were anxious to proceed with the Soochow-Hangchow-Ningpo Railway, which would also serve a very populous and prosperous section of the Yangtsze provinces. It would be the subject of a separate and distinct loan, and would be a separate undertaking, but its natural relations to the Shanghai-Nanking Railway, with which it would be linked up at Soochow, suggested that the two lines would be advantageously worked under one administration. A contract had been concluded with the Chinese for a loan to build a railway from Canton to the border of Kowloon, where it was designed to connect with the railway which the Government of Hongkong was constructing to that point from Hongkong. This would make the direct railway connection between Hongkong *via* Kowloon and Canton, which had so long and so ardently been desired by the colony. The loan was for £1,500,000, and was to be issued within eight months at the call of the Chinese Government. As regarded the Nanpiao coal concession, there was nothing to be added with advantage to what was stated in the report. With regard to the investments, he said that they consisted of 22,500 shares of £1 each, 8s. paid, and 225 deferred shares of £1 each, fully paid, in the Chinese Central Railways, Ltd., and 25,000 shares in the British and Korean Corporation. The Korean corporation had so far proved disappointing, the ore, which at first was of a very high grade and yielded gold of the value of about £150,000, having become impoverished below a certain level. The shares had now been written down to the value of £5,000. The Korean corporation had another *proposition* in view which it was hoped might prove of a more permanent character.

FAR EASTERN ENGINEERING, CONSTRUCTION, COMMERCIAL AND FINANCIAL NEWS

PERSONAL

MR. WILLIAM B. POLAND, Vice-president and General Manager of the Philippine Railway Company, for which corporation Messrs. J. G. White & Co., Inc., are constructing railways on the islands of Panay Cebu and Negros, Philippine Islands, has arrived in Manila and assumed the duties of Chief Engineer in the interest of the company he represents. Mr. Poland has an enviable record in railroad circles of the United States. He is a graduate in civil engineering of the Massachusetts Institute of Technology, class of 1890, and in 1890-91 he attained a post graduate scholarship in advanced engineering. In 1891-92 he was employed n the service of the United States River and Harbor Works as Superintendent of Construction in charge of location and construction of the Point Judith Harbor of Refuge, and Inspector in charge of a wrecking district on the New England Coast. In 1892-93 he held he position of Engineer in charge of preliminary and location surveys and maintenance work on the Pittsburgh & Erie Railway in Indiana and Illinois, and in 1893-98 he was Assistant Engineer of maintenance of way on the Chicago Division of the Cleveland, Cincinnati, Chicago & St. Louis Railway (Big Four), in charge of surveys of yards and terminals and reconstruction work, and in charge of maintenance of way of 460 miles of road. During 1898 he served in the Spanish-American War as Major of Engineers, Indiana National Guard, during which time he also acted as Battalion Adjutant of the 158th Indiana Volunteers. He also held in this year the position of Supervisor of Bridges on the Cairo Division of the Big Four Railway, and Engineer of Construction in charge of the reconstruction of the Baltimore & Ohio Southwestern Railway between Cincinnati and St. Louis, involving an expenditure of about $3,500,000 gold. In 1899 he was Division Engineer of the same line, in charge of both construction and maintenance. In 1902 he was Division Engineer of the Pittsburgh Division of the Baltimore & Ohio Railway, in charge of heavy construction and maintenance, and in 1902-04 he was Superintendent of the Indiana Division of the Baltimore & Ohio Southwestern line. In 1905 he was Chief Engineer and General Manager of the Alaska Central Railway. Mr. Poland is a son of General Poland, U. S Army, retired. He is a member of the American Society of Civil Engineers and of the American Railway Engineering and Maintenance of Way Association, in which he has taken a prominent part and contributed valuable and useful information on railway topics. He comes to the Philippines highly recommended from numerous sources, and is considered one of the foremost railroad engineers in America although yet a comparatively young man.

ELECTRIC RAILWAYS, LIGHTING, POWER, ETC.

PROJECTED LIGHTING PLANT, NANKIN.—There is a movement on foot at Nankin, China, for the establishment there of an electric lighting plant. At present the *maloo*, the broad, principal avenue of the city, is lighted by diminutive lamps, with feeble lights some 200 yards apart. The imperial mint possesses the only electric-light installation in the city.

JAPANESE DEMAND FOR WIRES AND CABLES.—With the immense development of electrical enterprises in Japan the demand for copper wires and cables is increasing daily, and the Furukawa Copper-Mining Company has decided to establish a new factory for the manufacture of copper wires at Nikko, the present factory being found to be inadequate to meet the demand. According to the latest report the total output of copper wires from this company's works amounts to about 400,000 *kin* (*kin* 1⅓ lbs.) per month, which is chiefly supplied to the various cable manufacturing companies of Tokyo and Yokohama. The majority of the covered wires and cables used by the Department of Communication is imported from abroad and the native manufacturers are said to be contemplating a cable factory on a very extensive scale.

RAILWAYS AND RAILWAY SUPPLIES

KIANGSHUH RAILWAY.—The first section of the Kiangkan end of the Kiangkan-Hushuh Railway has been opened and the works on the section from Hushuh have been commenced. The bridge which is to span the river will be built first.

NEW MANCHURIAN RAILWAY.—The Peking Government is negotiating to raise a loan from a French syndicate to build a railway along the Sungari River between Samsin and Kweihuacheng by employing Japanese engineers, the material also to be supplied from Japan.

JAPANESE RAILWAY NATIONALIZATION.—Thus far the Japanese Government has taken over three private lines in the main island, *viz.*, the Nippon (-Y.130,-53?,450), the Sanyo (-Y.74,012,980), and the Nishinari (-Y.1,956,505), the total amount involved being -Y.206,-582,025. None of this money has yet been paid.

ISHIKARI TANKO RAILWAY.—This enterprise covers a length of about 120 miles through the coal and lumber districts of Sorachi, Kashinai, and Shinyubari, in Japan, and the Government has decided to grant permission for the construction of the railroad for the special use of this company and not under the jurisdiction of the track regulations.

EASTERN SIBERIAN RAILWAY EXTENSION.—A Paris telegram announces that the Russian Government has decided to construct a railway to a point south of Vladivostok *via* Stretchensk and Habarovsk, in order to promote the development of Vladivostok. Russia intends to float a loan in France and Germany for this purpose. Work will commence in the spring.

PROJECTED AMUR RAILWAY.—A St. Petersburg telegram says that the construction of the projected Amur Railway, which is to be commenced in the next fiscal year, is inevitable in view of an article of the Portsmouth Treaty, which entitles Japan to prevent Russia from using the Manchurian Railway for any military purposes —that is the transport of troops or military stores.

WUHU-KUANGTECHOW (CHINA) RAILWAY STARTED.—The Governor of Anhui has telegraphed to Peking reporting commencement of the construction of the Wuhu-Kuangtechow Railway by the Anhui Railway Company. The work began with the building of a bridge over the Wuhu River under the supervision of a Danish engineer with the assistance of some foreign educated Chinese railway students. This is one of the railways in South and Central China to be built with Chinese money only.

TOKYO ELEVATED RAILWAY.—According to the plans of the Tokyo Elevated Railway, some sections of which are under construction, the authorities aim at completing the line between Shizuoka, near Shimbashi, and Yeirakucho, not later than March, 1909. Subsequently the central station will be established, after the completion of which work three elevated lines will be laid so as to join the Kobu, Nippon (Uyeno), and Sobu railways. For this continuous enterprise the Government will ask the Diet for $5,000,000 gold, the establishment of the central station alone requiring an outlay of about $500,000.

RAILWAY CAR FOR EMPRESS-DOWAGER.—The new parlor car which the Empress-Dowager of China ordered in France some months ago for the use of herself and the high mandarins of her suite in their journeys through the country, has been shipped to Peking. The car is divided into six compartments. First of all come two drawingroom *coupés* fitted with divans covered with pale blue silk. These are designed for the attendants of the Empress, and next to them comes the sitting and diningroom of Tsi An herself, which takes up the whole width of the car and receives its light through six great panels of glass reaching from floor to roof. At both ends of the saloon are wide divans, which can be turned into beds when occasion requires.

RAILWAY BRIDGE ACROSS YALU.—The Tokyo Government is reported as having decided to build a railway bridge across the Yalu River at the terminus of the Seoul-Wiju Railway, at a cost of about -Y-2,000,000. The bridge, which is to be built at a height of over 40′ above the water, will be 3,239′ long, and will permit of the biggest junks passing underneath by lowering only the mainmast. The structure is to be divided into two parts, one side for railway traffic and the other for vehicles and pedestrians. The work is to commence in April and is to be completed towards the end of 1909. By the time of its completion the Mukden-Antung Railway will be opened to traffic, and a through train service between Fusan and Mukden inaugurated.

MALAYSIAN RAILWAY.—Since the opening of the 33-mile extension of the Federated Malay States Railway, from Tampin, Malacca, to Gemas, Negri Sembilan, the railway extension further south, through Johore, to Johore Bharu, a distance of 120 ½ miles, is proceeding very rapidly, and there are indications of the line to Singapore being completed sooner than was expected a few months ago, when it was estimated that two years would be consumed in completion of the line. The opening of the 33 miles of railway mentioned makes a total distance of the main line now open of 352 miles, thus giving a through service from Penang, Straits Settlements, to the Negri Sembilan-Johore boundary, and upon completion of the section now under construction through Johore a through service will be in operation between Penang and Singapore.

CANTON-KOWLOON RAILWAY.—According to *The London & China Express*, much satisfaction is felt in London at the successful termination of the negotiations concerning the Canton-Kowloon Railway. The conclusion of this long-debated matter is considered a promising sign for the arrangement of other railway negotiations pending in China. The Canton-Kowloon Railway is intended to run from the Kowloon Territory of the Hongkong Government, which is situated on the mainland of China, to the City of Canton. The distance traversed by the line will be about 102 miles, and the route is through a fertile and thickly-peopled country. It will form the most direct communication between Hongkong and Canton. The building of that part of the line in Chinese territory has until now been delayed, owing to the obstructive policy of Chinese officials, but at last they seem to have given way under the pressure of an enlightened Viceroy. The ratification of the agreement involves the issue of a sterling loan for about £1,500,000 in London.

TOURANE-HUÉ RAILWAY, FRENCH INDO-CHINA.—The railway line from Tourane to Hué, French Indo-China, has been opened to traffic. The construction of this line was commenced in the summer of 1901, and its length is 107 kilometers. Leaving Tourane, it follows the coast, and crosses successively the secondary chains which detach themselves from the great Annamite Mountain Range and which extend to the sea, notably the important group of the *col des Nuages*. The railroad includes numerous iron bridges and tunnels, and, notably, between Tourane and Hué, a bridge of 350 metres across the river of Cudé, twelve bridges of 40 to 120 metres, and eleven tunnels representing a total length of 3,290 metres, including two of 840 and 562 metres, in the crossing of the *col des Nuages*, one of 422 and eight of 355 to 110 metres. In spite of this large number of tunnels, the line, following an elevated route along the coast for the largest part of the journey, offers to travellers similar scenery to that of the ancient Mandarin route, which was almost sublimely picturesque. But, further, the Annamite River population will derive considerable benefit. This population, fairly scattered, was really exhausted by the forced labor demanded from it for the transport of goods and passengers. On the other hand, it was difficult to get at Hué by way of the river, owing to a dangerous bar which renders its mouth difficult of access.

PUBLIC AND PORT WORKS, DOCKS, WHARVES, ETC.

BANGKOK DOCKS.—It is announced that German firms are making an effort to secure control of the Bangkok Dock Company.

IMPROVEMENTS AT CANTON.—As the work of improving The Bund of Canton progresses the waterfront is assuming a very different appearance. There are already a number of prominent buildings that give the city something of the appearance of a western rather than an eastern metropolis. Several stretches of The Bund have been completed. While it would not be difficult to find fault with the construction, and many repairs will soon have to be made, the roadway will be immeasurably better than anything Canton has enjoyed hitherto and add much to the prosperity of the city. One of the finest buildings on The Bund is that of the Electric Supply Company. New buildings have been erected upon Dutch Folly and some of the old ones have been repaired.

WATERWORKS PLANT FOR NANKIN.—Agitation for a modern water supply at Nankin, China, has been revived. At the present time the best drinking water obtainable is the yellow, dirty water of the Yangtsze River, which is delivered in water carts at the residences. This is boiled or filtered, or both, and used for cooking and drinking purposes. Some few individuals have had wells sunk or bored to some depth below the surface water. An effort was made a few years ago to bore artesian wells in different parts of the city, and American machinery was brought out and looked after by an American superintendent, but, because of no previous geological examination, inadequate management, or some other reason, the attempt was a complete failure.

NEW BRIDGES FOR SHANGHAI SETTLEMENT.—Messrs. Howarth Erskine, Ltd., of Singapore, have secured a contract from the Shanghai Municipal Council to erect two new steel bridges at Shanghai at a cost of $220,000 Mexican currency. The municipality has decided to do away with the old and insecure wooden structures known as the Garden and Chekiang bridges and replace them with new steel structures. The new Garden Bridge will be a massive structure of ornamental design, in keeping with the artistic surroundings of The Bund, and will, when completed, consist of two spans of over 170′ each, with a main roadway of 40′ width along each side and a footway of 10′ width. Provision is made to run a double line of tram cars in the center of the main roadway, while the entire road surface will be paved with hardwood blocks. There will be over 860 tons of steelwork in this bridge before it is completed. The Chekiang Bridge is of the lenticular girder type, and is to have a span of 196′. It is also of massive construction to take the load of running tram cars as well as the pedestrian and heavy street traffic. The weight of the steelwork in this bridge will be over 360 tons. A feature in the erection of these bridges will be the method adopted in carrying on uninterruptedly the existing road and water-borne traffic, and this will be no small task when one considers the amounts there really are at these two points.

SHIPBUILDING AND GENERAL MARINE MATTERS

"AUSTRALIAN" A TOTAL LOSS.—The liner *Australian*, aground at Vashon Head, North Australia, has been abandoned as a total loss

JAPANESE DESTROYER "MINATSUKI."—The trial trip of the new Japanese destroyer *Minatsuki* was satisfactory, the vessel developing a speed of 29.95 knots per hour.

PROPOSALS FOR HULL, MANILA, P. I.—Sealed proposals in triplicate for the construction of one (1) hull for a stern paddle-wheel steamer will be received at the Office of Water Transportation, Quartermaster's Department, Manila, until 10 a. m., February 4th, 1907, and then opened. Blank forms and general description of the vessel will be furnished upon application to the officer in charge of water transportation, Manila. Envelopes containing proposals should be indorsed "Proposals for the Construction and Delivery of One Hull for Stern Paddle-Wheel Steamer, to be opened at 10 a. m., February 4th, 1907.," and addressed W. S. Scott, Captain, Quartermaster, U. S. A.

"WOOLING-MARU" IN SERVICE.—The new steel twin-screw steamer *Wooling-Maru*, built by the Kawasaki Dockyard Company, Ltd., of Kobé, to the order of the Konan Kisen Kaisha for service on the Hankow-Honan run, has been placed in commission. Her dimensions are as follows:—Length between perpendiculars, 228′ 8″; moulded breadth, 39′ 5″; moulded depth to main deck, 9′ 5″; draught (light), 4′; draught (loaded), 7′ bunker capacity, 120 tons cargo capacity, and about 600 tons on loaded draught. The gross tonnage is 1,458, registered tonnage 904, and the vessel has a speed of 13 knots. Particular attention has been paid to the needs of passengers, particularly Europeans.

JAVA-CHINA-JAPAN STEAMER "TJIKINI."—The steamer *Tjikini*, constructed for the Java, China and Japan Line, has been launched from the dockyard of the De Schelde Royal Company at Flushing. The ves-

sel has a length of 373′, a width of 45′ 5″, and a depth of 30′, with a loading capacity of 7,000 tons. It is principally destined for the cargo service, but has also accommodation for some first and second-class passengers, and for a larger number of other classes. Special installations have been made for quick loading and discharging. The engines are of the vertical triple compound system, with cylinders of 21½, 40, and 67″ diameter, and 48″ revolutions, developing 1,700 h. p. with 70 r. p. m.

LAUNCH OF THE STEAMER "PERLE".—The small French steamer *Perle*, being built to the order of M. Roque by the Hongkong and Whampoa Dock Company, through the agency of Messrs. Wilks & Jack, has been launched at Kowloon. When put in commission she will ply in the subsidized French mail service between Haiphong, Quan-Yen and Monkay, on the Saigon River, the service extending from the French city to the Chinese Frontier. She is built specially for the peculiar requirements of the service, and has but a draft of 2′ so as to be able to go into the creeks and shallow parts of the river. Her principal dimensions are length, over all, 145′; breadth, 24′, and depth, 5′. She will have cabin accommodation for thirty 1st and 2d class passengers, and is fitted with compound surface-condensing engines capable of driving her at a speed of 10 knots, and supplying electric light. The system of propulsion of stern-wheel. Four other similar steamers are included in the order for the *Perle*

LAUNCHES FOR SALE, MANILA, P. I.—The Bureau of Navigation, Philippine Government, offers for sale the following property:—(*a*) The steam launch *Saisi*, a sea going launch 86′ in length over all; beam 14′ 5″; depth (moulded) 7′ 6″; draft (loaded) 7′; draft (light) 6′; built at Hongkong in 1900. She is fitted with compound surface-condensing engine, with feed pumps and all necessary fittings attached, and is in first-class condition. Her boiler is of Scotch type, diameter 6′ 6″ × 8′ 8″, in first-class condition, with all necessary fittings. The hull is sound and strongly constructed, and shows no sign whatever of deterioration. This launch throughout is in excellent condition, and is ready to be put into commission at once. (*b*) The steam launch *Jolo*, a sea-going launch 65′ in length over all; beam 11′ 4″; depth (moulded) 5′ 8″; draft 5′; built in 1890. She is fitted with compound surface-condensing engine, in good order, and a boiler of the Scotch type in fair condition. All fittings in engineroom are in good condition. This launch throughout is in fair condition and ready to be put into commission at once. (*c*) The steam launch *Suerte*, a river and harbor launch 61′ 7″ in length over all; beam 11′; draft 5′; tonnage 21.71 gross. She is fitted with compound non-condensing engine and Scotch boiler. Engine and boiler are in fair condition. This launch is ready to be put into commission at once. (*d*) Sealed bids will be received up to and including February 15th, 1907, and will be publicly opened at 4 p. m. on that day. The vessels may be inspected at Engineer Island, Manila, P. I. Further information will be given if application therefor is made to Frank P. Helm, Director of Navigation.

MINING, MINERALS AND THE METAL TRADES

STEELWORKS EQUIPMENT, JAPAN.—It having been found necessary to extend the Japanese Government Steelworks, a sum of $1,120 000 gold has been appropriated for expenditure during the current fiscal year. A further sum of $5,000 000 is needed, and when this sum is expended it is expected that the output of iron will be increased to 180,000 tons a year.

NEW ZEALAND'S MINERAL WEALTH.—Gold to the amount of $325,000,000 has been taken from the earth in New Zealand during the past 50 years, and yet the surface of the gold-bearing deposits have comparatively been little worked. Great possibilities await further prospecting and mining combined with scientific methods. The coal mines of New Zealand produce excellent coal, and in close proximity are immense deposits of iron ore awaiting development.

FOREIGN INVESTORS AND JAPANESE MINES.—Although according to a consular report, there have been a great number of mines in Japan offered for the exploitation of foreign concerns, no deal has been made as yet. The great difficulty experienced up to the present in coming to terms between the parties was the fundamental change in the system of mining. A certain English syndicate, it is reported, has, however, decided to work two or three mines as soon as the engineers arrive in Japan this month.

RISE IN THE PRICE OF TIN.—According to *The London & China Express*, it is a matter of common knowledge that the rise in the price of tin has been largely due to the falling off in the Straits supplies. Some of the bears of the metal have endeavored to make out that the decrease was not at all large; but official reports from the Federated Malay States show that in the first nine months of 1906 the export of tin, including metal contents of ore shipped, amounted to 608,381 piculs, as compared with 636,191 piculs in the corresponding period of 1905, and very much larger quantities previously.

GOLDFIELDS OF JAPAN.—Mr. Frechville, a well-known mining engineer, who was sent out to Japan by a group of British capitalists to report upon the prospects of gold-mining in that Empire, reports that for the Japanese themselves Japanese goldfields present plenty of opportunity for profit, but that British companies would bankrupt themselves trying to pay expenses in mines which are yielding Japanese rich returns. There are largely ore bodies of a low grade character, and there is any quantity of cheap labor. Nevertheless, it does not appear that modern methods of working, which are scientific and expensive, are applicable.

NORTH-EASTERN COAL MINING COMPANY, JAPAN.—This company, with a capital of -Y-2,000,000, will be established in the near future at Yumoto, Iwashiro Province. The mine, which covers an area of 2,500,000 *tsubo*, is said to contain no objectionable strata, and is full of rich veins of coal. The veins seem to grow thicker as one descends. One vein, which is 6′ in width, is divided into two by rocks in the vicinity of Roto. At a depth of about 350′ the thickness of the coal strata is more than 12′ and the quality excellent. Though the quality of the mineral is inferior to that of Kyushu and Hokkaido coal, the low expense of mining it amply compensates, it is said, for this disadvantage.

IRON FURNACE FOR HOKKAIDO.—The directors of the Hokkaido Tanko Railway Company are planning to erect an iron furnace after the purchase of the railroad by the Japanese Government. The coals of the company's mines are said to be well suited for the manufacture of iron, and as the locality extending from Poronai to Muroran abounds in iron sand, the quality of which has been ascertained to contain 80 to 90 per cent of pure iron, according to reliable authority, the scheme to set up an iron factory has been inaugurated. It has been known for some time that there are considerable deposits of iron sand along the coast of Volcano Bay in Hokkaido. It has now been ascertained that in all the rivers flowing into the bay there are also immense deposits of iron sank along the banks. The iron is free from sulphur and phosphorous impurities.

AUSTRALIAN GOLD YIELD.—The production of gold in the States of Australia and in New Zealand shows a slight decrease for the first six months of 1906:—

	First Half-Year 1905 Fine Oz.	First Half-Year 1906 Fine Oz.
Western Australia	965,372	901,861
Victoria	338,747	381,681
New South Wales	111,869	133,150
Queensland	290,478	251,986
New Zealand	238,085	252,001
Total	1,944,541	1,923,679

To which must be added the output of Tasmania, about 35,000 ounces.

FINANCIAL AND MISCELLANEOUS

JAPANESE COAL REFINERY COMPANY.—The Japanese Coal Refinery Company is about to increase its capital to -Y-2,000,000 with the extension of business in view.

NEW ANGLO-JAPANESE BANK.—A newly-established Anglo-Japanese Bank has been granted official sanction by the Tokyo Government to open a branch office at Yokohama.

AGRICULTURAL MACHINERY FOR MANCHURIA.—Mr. Thomas Sammons, American Consul-General at Newchwang, writes that the beginning of the year 1907 will mark the introduction of steam plows and threshes into Manchuria. Many native landowners are now interested in this subject, and if the pioneer farm implements prove successful an extensive trade will be developed.

IMPERIAL CHINESE RAILWAYS STERLING LOAN.—Coupons of the Imperial Chinese Railways (Shanghai-Nanking line) 5 per cent Sterling Loan, due December 1st, 1906, are now being paid at the offices of the Hongkong and Shanghai Banking Corporation, 31 Lombard-st, London, E. C. When the Shanghai-Nanking Railway bonds were issued a few years ago at 97½, a profit-sharing note was given with every £100 bond. There is now a market for these certificates. They are quoted at £8, and Shanghai-Nanking Railway bonds (in certificates) are 103½, so that there is an excellent profit. There is a possibility of the £1,000,000, balance of the Shanghai-Nanking Railway loan being issued within the next half-year by the British and Chinese Corporation, though in this instance no profit-sharing certificates will be given with it.

SAWMILL AND RAILWAY MACHINERY, FORMOSA.—The Formosan Government has granted an extensive concession to a Japanese company to cut the timber from an area of 25 square miles, containing more than 2,000,000,000,000′. About $2,000,000 gold capital will be invested, nearly three-fourths of which will be required for the construction of a railway, which will take three years. Then the company will locate a sawmill at Kagi. The first year's cutting will be about 16,000,000′, which will be gradually increased to 25,000,000′ annually. Manufacturers of logging equipment and sawmilling machinery wishing to supply the material for this undertaking should address the Fujitagumi, Osaka, Japan, and also the chief of the Industrial Department of the Formosan Government at Taihoku, Formosa, giving in each case a full description of the equipment they have to offer.

JAPAN'S RAILWAY ACCOUNTS.—The Railway Operating Bureau of the Japanese Government has just issued a statement of accounts covering the period from May 1st, 1905, to April 30th, 1906, inclusive, and following are the earnings of Government and private railways in yen:—

	1905-6.	1904-5.	*Increase.*
State Railways	21,056,140	21,406,137	2,650,003
Private Railways	44,977,025	37,538,711	7,438,314
Totals	69,033,165	58,944,848	10,088.317

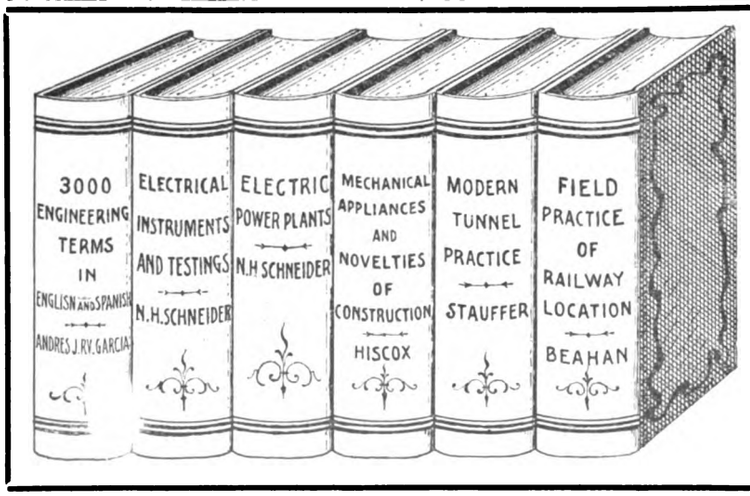
From this table it is seen that the earnings for the Government lines showed an increase of 12½ per cent in the 38th fiscal year as compared with the 37th, and that the increase in the case of private railways was 20 per cent, the combined increase being 17 per cent. The operating expenses were as follows, expressed in yen:—

	1905-6.	1904-5.	*Increase.*
State Railways	11,129,154	9,463,971	1,665,183
Private Railways	21,026,020	17,175,241	3,850,779
Totals	32,155,174	26,639,212	5,515,262

There was consequently an increase of 17½ per cent in the case of the Government lines and of 22½ per cent in that of the private lines, the increase over both being approximately 20 per cent. The net profits are shown in the following tables, amounts expressed in yen:—

	1905-6.	1904-5.	*Increase.*
State Railways	12,926,986	11,942,116	984,829
Private Railways	23,951,005	20,363,470	3,587,535
Totals	36,877,991	32,305,636	4,572,355

These results, stated with regard to the capital invested, show that the rate of profit in the case of the Government railways increased by 0.1 per cent, thus becoming 8.1 per cent for the year, while for the private lines the increase was 1.1 per cent, and the figures for the year became 9.5 per cent. Taking the grand aggregate, the increased rate of interest on invested capital was 0.7 per cent and the rate reached the fine figure of 9 per cent This is considered a remarkable showing.



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	$10,000,000.00
By Balance 30th June, 1906	$10,000,000.00
(invested in Sterling Securities).	$10,000,000.00

Silver Reserve Fund

To Balance	$11,000,000.00
	$11,000,000.00
By Balance 30th June, 1906	$10,250,000.00
By Transfer from Profit and Loss Account	750,000.00
	$11,000,000.00

ANHUI RAILWAY

"Quietly and unostentatiously," says *Nan Fang Pao*, a well-informed Chinese newspaper, and characterized by strict business methods, "the Anhui Railway has been doing its work. With Lord Li Ching-fang as Director-General of the enterprise, assisted by a staff of men who know their business, the success of the railway is a foregone conclusion. Already the survey of the line has been completed to Ningkwofu, distant about 50 miles from Wuhu, and the engineers are now hard at work surveying the third section from Ningkwofu to Kuangtechou. The work of surveying has been greatly delayed owing to heavy rains.

"The land-purchasing officials have been busy in buying the land required for the railway, and they have made excellent progress in their work. No serious interference with graves or important buildings has been met with, and the difficulty of settling disputes and lawsuits with land grabbers and speculators has been conspicuous by its absence; as the people of Anhui appreciate the value of the iron road to their province and will not voluntarily place obstacles in the way. Already many of them, seeing the foreign engineers and their assistants hard at work in locating and surveying the line, have recognized the fact that the railway is a reality and will in the course of two or three years become a most valuable asset for promoting the commercial and material prosperity of their province. They have, therefore, shown considerable willingness to come forward to subscribe for the shares, and their former indifferent attitude toward the enterprise is gradually undergoing a change.

"The directors and the gentry, although fully alive to the present spirit of *China for the Chinese*, fear no complications or other consequences from the employment of foreigners, and have engaged several Norwegian and one Japanese engineer for the construction of their line. These foreign gentlemen have got on excellently with the Chinese in Anhui, and their relations with the directors and gentry are of the most cordial nature. There is absolutely no such thing as anti-foreign spirit observable in Anhui, so far as the experience of these foreigners goes. This proves conclusively the wisdom and sensible policy of the Director-General in daring to take a policy opposite to that of the directors of other provincial railways who insist on employing only Chinese engineers at fabulous salaries, far out of proportion to their ability and experience. Owing to the sensible policy of Lord Li, the Anhui Railway will prove a most economical undertaking and will serve as an example for other provinces to imitate. As soon as the railway materials, such as bridge-girders, rails, sleepers, etc., arrive next spring, the work of laying down the line and erecting the bridges will commence. The work of filling in the ground at the railway terminus for building workshops, warehouses and stations was commenced several months ago, and already considerable progress has been made. The report that the Anhui Railway is in lack of funds is hardly correct, as a large part of the required capital, Tls. 4,000,000, has already been subscribed, while the extra tax imposed on rice and salt exported from Anhui Province is yielding a substantial amount yearly.

"Altogether, the prospect of the Anhui Railway is very bright, certainly far more so than the same enterprises in the neighboring provinces."

PRECIOUS STONES IN SIAM

According to the *Siam Free-Press*, sapphires and rubies are the only gems the working of which is of any importance, in Siam, though spinels, zircons, garnets, and topaz are also produced to a small extent. Of the two forms of corundum, sapphires are very much more abundant and more largely worked than rubies. Siamese sapphires form a considerable proportion of the world's supply of this gem. Statistics, however, are not available, as there is no duty on the stones, and the work is carried on by numerous small parties of men and even by individuals, who dispose of their findings to a number of travelling traders.

Siamese rubies do not command a good price, as those of good color are mostly very small, while those of good size are of poor color. It is believed that any good stones which are found are sent overland to Burma and sold as Burmese rubies. As regards statistics, the same remarks apply as have already been made about sapphires.

Practically all Siamese sapphires come from the District of Phailin, in Battambong. Rubies are worked in a small way in this district, but the chief ruby workings are in Chantaboon and Kratt. The deposits are all alluvial, work being usually carried on by digging numerous small pits in the neighborhood of streams, the gem-bearing earth being washed by hand in the streams. Most of the work is in the hands of Burmese and Shans, who, however, employ a considerable number of Laos as laborers.

The gem-buyers are Burmese, Shans, Singalese, and natives of British India, and some European firms in Bangkok take a share in the trade.

The gem-mining districts are, for the most part, exceedingly unhealthy, which fact is a great bar to European enterprise in this line.

RAILWAYS IN MANCHURIA

The British Commissioner of Customs recently sent to Fengtien to take charge of the establishment of Custom Houses at Mukden and Antunghsien, has presented a memorial, according to the *China Times*, to the Tartar General at Mukden, suggesting the immediate extension of the Imperial Railway of North China from Hsinminfu to Fakumen, which places are about 55 miles apart, to facilitate foreign and native trade in Southern Manchuria. He states that by building this section, merchandise from Peking, Tientsin, and other places inside the Great Wall, can be transported direct to Fakumen for reshipment to Kirin and Heilungkiang, while the products in the District of Liaohsi, west of the Liao River, can be sent to Tientsin, etc., in exchange without trouble. Otherwise all products traffic in the Liaotung and Liaoshi districts will come into the hands of the Japanese who can send them to Japan and other places *via* Tairen. This proposal is favored by the Tartar General, who will soon apply to the proper authority for funds to carry it out. The commissioner also stated that in connection with the reorganization of trade in Manchuria, especially in Fengtien, which is the wealthiest and most important of the three eastern provinces of Manchuria, it is absolutely necessary to effect the following reforms without delay:—

(1) To construct broad roads in important places in Southern Manchuria, such as Mukden, Fakumen, Hsinminfu, T'iehling Paioyang, etc., in foreign style, to facilitate the transport of foreign and Chinese merchandise by carts and other vehicles. After the completion of the broad roads, a Department of Public Works should be established at Mukden, or some other central point, to take charge of them so that they may be repaired or rebuilt from time to time in case of need, under supervision of experienced foreign and Chinese officials. By the construction of these roads, not only will the trade in Fengtien be much improved, but in case of hostilities, the Chinese authorities will find it much easier to transport their military forces.

(2) To dredge the shallow parts in the Liaoho, which is the only inland waterway in the Province of Fengtien suitable for the navigation of steamboats and junks for transporting merchandise, so that steamboats and Chinese cargoboats may navigate it without difficulty. After dredging the river, the Chinese authorities should reduce the river and boat tax as an encouragement to Chinese boatmen; then the convenience of navigation in the Liaoho will become equal to the transport of freight by rail.

(3) As the greater part of the foreign and native merchandise in Fengtien is transported by carts drawn by horses or mules from one place to another, and in view of the heavy charges for horses and mules lately, it is urgently necessary to devise means to encourage Manchurian natives and Mongols who are owners of large herds of these animals, to bring them to Fengtien for trade purposes, otherwise the commerce of Southern Manchuria will be much hindered, because now the charges for horses, etc., are five or six times higher than they should be.

COAL LOADING, NEW SOUTH WALES

Writing from Newcastle, Mr. F. W. Goding, American Consul, says that experts have recognized for some time that the appliances for loading vessels with coal in that port of Australia were antiquated. As an instance, in England the coal cars with a capacity of 15 tons are so manipulated that 500 tons per hour are loaded at each berth, while in America 2,000 tons per hour is usual. In Newcastle 1,000 tons of coal per hour are loaded at 18 berths, showing how far behind the system is. The engineer in charge has evolved a system of gravitation which will allow vessels to be fed without cessation or interruption until loaded. Under this system 40 or more coal cars, of an average capacity of 7½ tons, will be unloaded at each crane per hour, two cars being handled at the same time. This means that a vessel will be fed at the rate of 640 tons per hour at each crane instead of 80 tons per hour as at present. There is a strong probability that the capacity of the coal cars will be increased to 15 tons in the near future, which would allow the handling of 1,200 tons per hour at each berth, reducing the cost of loading coal at this port by 20 per cent. The Government is determined to bring the system of loading coal at Newcastle up to the highest point of efficiency, in which effort all those having any connection with the commercial interests of the port heartily second.

MALAY WOMEN AS GOLD MINERS

Under a recent order made by the Resident, the royalty payable on alluvial gold won by persons working under individual mining licenses in the State of Pahang, F. M. S., has been commuted for a fixed payment of $5 a person a year, half rates being paid for six months or less. This alluvial industry—which is confined chiefly to certain villages along the trunk road, such as Budu, Sega, Tanjong Besar, and Benta—is, according to the *Pinang Gazette*, assuming fairly extensive proportions. A feature of the work is that large numbers of Malay women are engaged and are keener on it than the men. They take great pains to wash carefully selected sands for small quantities of gold. The ore so obtained is seldom or ever exported, being either made into rough jewelry or sold to local Chinese instead. Another form of primitive mining, favored by kampong Malays in many parts of the Ulu, is called *meriau* or *melanda*. Like the fossicking for alluvial gold, it consists of washing the sands of selected river beds for tin ore, and here again the women are much in evidence and do more of this kind of work than the men. With a little luck and some perseverance, a fair quantity of ore is usually won in this way, from 50 cents to a dollar's worth being obtained by one worker in a day, which is ample for the average Malay family to live on, and have something over, even if but one person of a household went to *melanda*.

FAR EASTERN ENGINEERING, CONSTRUCTION, COMMERCIAL AND FINANCIAL NEWS

ELECTRIC RAILWAYS, LIGHTING, POWER, ETC.

MUNICIPAL TELEPHONE SYSTEM, VLADIVOSTOK.—A contract for a municipal telephone system for Vladivostok has been awarded to the Russian branch of a German firm. The annual subscription for a single instrument is to be $38.62 gold.

SUBURBAN ELECTRIC RAILWAY, MANILA.—The Manila Suburban Railway Company, which is an adjunct of the Manila Electric Railroad and Light Company, has secured a franchise from the Philippine Government to build a branch line to Taguig *via* San Pedro Macati, and has been given the right to transport freight, express packages and baggage over its lines.

TIENTSIN ELECTRIC TRAMWAY.—Electric cars are now running through the French Concession at Tientsin. The route is across the International Bridge and through the Rue Courbet, Rue de Baron Gros, Taku-rd and so into the Japanese Concession. The question of continuing the system through the Japanese Concession has finally been favorably settled.

NEW TELEPHONE SYSTEM, BANGKOK.—The Minister of Public Works for Siam has received the sanction of the King to the proposal to acquire and install an entirely modern and up-to-date telephone system in Bangkok. The system decided on is the central battery system. The installation will go to public tender. The Minister is also arranging for a new cable from Koh-Si-Chang to Siracha with connection to Bangkok. When an efficient service is established there, it will be an inestimable boom to the shipping community.

COMPROMISE EFFECTED.—The Yokohama Electric Railway Company and the Buso Electric Company, which have been competing with each other to obtain official permission to build railways to Kamakura along the same route, have arranged a compromise. The Buso people have conceded the line to the Yokohama Electric Railway Company, while the Buso people will construct a new line to Byobugaura from Yokohama, thence to Kamakura and to Misaki along the outer coastline, and thence to Uraga-machi. The surveys are now being carried out.

ELECTRIC RAILWAYS, JAPAN.—The early construction of three electric tramways in the northern portion of the Japanese Island of Kyushu is under contemplation. The first, to be built from Moji to Kokuri, a distance of eight miles, estimated cost $350,000 gold; the second, from Moji to Yawaka, 12 miles in length, at a cost of $500,000, and the third, one of 23 miles, between the important towns of Fukuoka and Kokura, at an estimated cost of $1,250,000 gold. Catalogs should be sent to the Mayor and Chamber of Commerce of the cities of Moji, Fukuoka, Kokura, and Kumamoto.

HYOGO ELECTRIC RAILWAY COMPANY.—The prospectus is now published of this company, which has just obtained a charter from the Japanese Government to construct an electric railway between Hyogo and Akashi. The company's business is to run an electric-car service between these two places, to supply electric motive-power, and engage in all other necessary business. The authorized capital of the company is -Y-2,000,000, in 40,000 shares of -Y-50 each. Of this number only only 5,000 shares are placed on the market the remaining 35,000 shares being taken up by the promoters and patrons.

ELECTRIC TRAMWAYS, SHANGHAI.—In a recent report the Municipal Engineer of Shanghai dealt with the construction of the new bridges across the Whampoo River for the accommodation of the electric tramway. With reference to the New Garden Bridge he stated that in the north dam 40,000 cubic feet of mud had been removed, leaving 2,500′ more to be removed. The dam is remarkably water-tight. Within a foot of the bottom a little water *wells* up in the center and makes it possible that great trouble would have been experienced had the foundation level been a few feet deeper. About 4,000 cubic feet of mud had been removed from the center dam, but it was found impossible to complete the south dam with Oregon pine piles owing to the presence of stones and other obstructions below low water. Hardwood sheet piles were substituted and it was expected the dam would soon be completed. Another year will have passed ere the new Garden Bridge is completed. The Chekiang-rd Bridge is presenting several difficulties. First there was not sufficient sheet piles, and at the time of the report there were 25″ water (pumping) in the north dam, while gas and water mains obstructed pile-driving. Meanwhile the closing of the bridge was causing great inconvenience to thousands of people daily. In the Settlement practically all the tram poles had been *planted*. The track work had been completed in most of the roads and the laying of the junction and curves at the corner of The Bund and Nanking-rd about completed.

STREET RAILWAY AND ELECTRIC LIGHTING PLANT, VLADIVOSTOK.—Consul Roger S. Green, referring to his recent report in regard to the improvements planned at Vladivostok (see The Review for November, 1906) now writes to Washington that the municipality has determined to undertake by itself the construction of the electric street railway and light and power plant. No definite project has yet been adopted, but an engineer is engaged upon plans and estimates . The present intention seems to be not to give the contract for the whole to one firm, but to buy the necessary material from a number of different parties. Persons interested in any kind of street railway and electrical supplies, from dynamos and rails to patent fare registers, etc., should therefore send at once catalogs to the Mayor of Vladivostok, and catalogs with price and other pertinent information either by their own representative or to some local house. Certain material is wanted at once, *viz.*, (1) rails (Phoenix type, with groove for flange of car wheel), a small lot needed to lay on a section of the streets where a new paving is soon to be put down; two grades wanted: (a) rails weighing 42.4 kilograms to the meter, quantity required, 2,455,616 lbs. If this weight can not be supplied, rails weighing up to 45 kilograms to the meter may be substituted: (b) rails weighing 33.5 kilograms to the meter, quantity required, 794,464 lbs. If not obtainable, rails weighing up to 35 kilograms per meter may be substituted. (2) closed cars, having 18 or 20 seats inside and standing room for six persons on each platform, with two motors, each of 20 h. p. and adapted to direct current of 500 volts.

RAILWAYS AND RAILWAY SUPPLIES

IPOH-TRONOH (F. M. S.) LIGHT RAILWAY.—The light railway now being constructed from Ipoh to Tronoh is estimated to cost $1,000,000.

KIANGSI RAILWAY.—A Belgian syndicate has negotiated a 6 per cent loan of Tls. 4,000,000 for the Kiangsi Railway, between Kiukiang and Nanchang.

KOWLOON-CANTON RAILWAY.—The agreement of the Kowloon-Canton Railway has finally been signed and active construction should progress rapidly.

KIRING-CHANGCHUN RAILWAY.—Russians are trying to compete with the railway between Kirin and Changchun by dredging the River Sungari and giving better facilities on that waterway.

RAILWAY OPIUM TRAFFIC, CHINA.—The British Minister at Peking and the Waiwupu of the Chinese Government are reported to be conducting negotiations on the import of opium over the Tientsin-Chinkiang Railway and the Burma-China Railway.

TARLAC (P. I.) RAILWAY.—The Tarlac Railway Company is progressing rapidly in the construction of its line in North Luzon. Five miles of the railway are already in operation, and both passenger and freight traffic over the completed section augur well for the future of the road.

LIGHT STEAM RAILWAY, JAPAN.—A light steam railway is projected to run from Nagasaki, to Shimabara, a port on Shimabara Bay, opposite the Port of Misumi a distance of 26 miles, costing in its construction $325,000 gold. Catalogs of materials should be sent to the Mayor and Chamber of Commerce of Nagasaki.

SOUTH MANCHURIA RAILWAY.—Vice-president Nakamura, and other officials of the South Manchurian Railway, are busily engaged in negotiating with the military authorities for the transfer of the railway, which will take place at the end of the coming March. From April the company will start the work of widening the present gauge of the line.

URGA-SUNGARI RAILWAY.—A Peking dispatch states that as the result of negotiations carried on between Viceroy Yuan Shihkai and the Minister for Urga in the Department of Posts and Telegraphs, the Chinese Government has decided to construct the Urga-Sungari Railway, appropriating $500,000 from the proceeds of the Peking-Hankow and Peking-Tientsin railways as a starter fund.

TIBET ROPEWAY COMPANY, LTD.—A concern has been formed under the name of *The Tibet Ropeway Company, Ltd.*, for the purpose of carrying goods by means of a wire-rope tramway at a lower cost and much quicker than they can be transported in any other way from India into Tibet. The company's prospectus says that a concession has been secured from the Government of India, and the details given of the estimated expenditure and revenue indicate a return of 20 per cent dividend on the undertaking, even on the basis of present trade, which, with improved and cheaper transport, will be sure to expand almost immediately.

SHANGHAI-KASHING RAILWAY.—Work on the construction of the Shanghai-Kashing Railway has begun outside the Great South Gate of the Shanghai Native City. The Kingsu Railway Company will construct this line the route of which will be from outside the Great South Gate to Fengchingchen on the Kiangsu-Chekiang border, a distance of about 35 English miles. From Fengchingchen westward the Chekiang Provincial Railway Company will take up the work and connect the line with the City of Kashing and thence to the capital of the province, Hangchow. This railway is considered to be a very important one to the trade interests of this section of China.

EASTERN SIBERIAN RAILWAY.—M. de Lobel, a French noble, in consonance with the Russian Court Party, has secured the right to construct the Eastern Siberian Railway. The line will be constructed both from the western terminus of the Siberian Railway and Behring Strait to connect with the Behring Strait Railway, the underground line proposed by an American syndicate from Alaska. M. de Lobel is said to be working for the syndicate. The terms of the agreement with the Russian Government are the payment to the latter of 200,000,000 roubles, the continuance of the concession for 93 years and the privilege of working the numerous mines in the region the line will tap.

SEOUL-FUSAN RAILWAY.—The report of the Seoul-Fusan Railway Company for the first half of the year 1906 gives the following particulars of the company's affairs at the close of that period:—Government subsidy, -Y-450,000; cash transferred from Reserve of the Seoul-Chemulpo section, -Y-107,352.30, and cash transferred from the Reserve for equalising dividends, -Y-1,-780.70, making a total of -Y-550,123. Of this sum, -Y-109,133 is appropriated to make good the losses sustained; -Y-450,000 is paid to shareholders as an interim dividend at the rate of 6 per cent *per annum*. The price of the company's shares now stands at -Y-94. After the railway is sold to the Government the amount to be realized per share by shareholders will be -Y-39.30, setting off the expected expenses incurred in the liquidation and repair work.

CANTON-HANKOW RAILWAY.—Mr. A. E. Smith, American Consul at Victoria, B. C., reports that it is current among the Chinese of that city that $50,000,000 have been raised—largely in Canada and the United States—for the construction of the Canton-Hankow line. The principal promoter in Canada is a Chinese known as Charlie Yip Yen, long a resident of British Columbia. In company with others he has traveled largely over the United States and Canada, and everywhere has been successful in raising funds for this project. Four million dollars of the capital were subscribed by Chinese residents of Vancouver, Victoria, New Westminster, Montreal, and other points in Canada; while many more millions have been subscribed by Chinese living in New York City, Chicago, San Francisco, and other cities of the United States.

CHINESE RAILWAYS.—Loans so far arranged by China for railway construction, are detailed by Mr. George Jamieson in a financial article dealing with foreign investments in Chinese railway loans. They are all guaranteed by the Imperial Government of China, and are further specifically secured by a mortgage of the particular railway in respect to which they are issued. The loans are as follows:—British 5 per cent (£2,300,000) on the Peking-Shanghai-Kuan line; Belgian 5 per cent (Fcs. 112,500,000), on the Peking-Hankow line; Russian 5 per cent (Fcs. 40,000,000), on the Chengtin-Taiyuenfu line; Beligian 5 per cent (Fcs. 40,000,000), on the Kaifeng-Honanfu line; British 5 per cent (£800,000 issued to the Peking Syndicate, Ltd.), on the Taickow-Chinghua line; British 5 per cent (£3,250,000), on the Shanghai-Nanking line; British 5 per cent (£21,500,000 about to be issued), on the Canton-Kowloon line.

SWATOW RAILWAY.—The official report of the Swatow Railway, China, which has been published, confirms the main indictment, according to the *North China Daily News*, which everyone with eyes in his head has been able to bring against the work—the insufficiency of the mud embankment, and sand patching and ballast to stand the onslaughts of the tropical rains which are common there. In some places the sleepers float in a bed of sand. The report forecasts the opening of three other stations, and the building of a depot at Swatow. Attention is also called to the large number of Japanese employed first of all in the construction, and now in the management of the railway; but notices that some Chinese have been sent to Formosa to learn the railway business. Five thousand six hundred dollars (Mexican) are given as the daily receipts, and a raise of $1,000 per day as soon as the freight traffic is opened, is forecasted. At present there is a persistent rumor that the line is being run at a loss.

RAILWAY IN SZECHUEN.—A telegram from Berlin, published in the *South China Morning Post*, announces that China has given her consent to the construction of a railway line in the Province of Szechuen, and that the cities in this province are to be opened to trade. Szechuen, of which the provincial capital is Chingtu, has an area of 166,800 square miles and an estimated population, according to Chinese official data, of more than 67,712,897. It is one of the most populous provinces in China, and is one of the richest in respect to minerals. The people will build their own railway and surveys have been conducted with a view to finding a practicable route for a railway to connect Burma with the Yangtsze region in Szechuen, and it is anticipated that a definite project for such a line will, now that the Government sanction has been obtained to the introduction of the railway, shortly be launched. The French also desire to carry their Yunnan Railway to Chingtu, thus connecting the capital of French Indo-China with the Capital of Szechuen.

YUET-HAN RAILWAY.—The following significant notice has been published by Cheng Koon Ying, president of the Kwang-Tung Mercantile Administration of the Yuet-Han Railway Company, Ltd., dated at Canton, January 21st, 1907:—"All materials of whatever description purchased by this railway company are to be paid in full on net price strictly free of commissions or returns. This has been already notified in the local papers. Owing to rumors to the contrary being recently in circulation, the undersigned begs to repeat this for the information of the public that in the event of any employé of this railway company who may fraudulently ask the dealer to invoice any goods at an excessive price, or receive commissions etc., when once brought to light, he shall be heavily fined and severely dealt with. Any dealer transacting business with this railway company who facilitates any employé to commit such a fraud, which amounts to a breach of faith, his name and the name of his firm shall be advertised in the paper and no more business shall be transacted with him and his firm by this railway company in the future."

SOUTH MANCHURIAN RAILWAY ORGANIZATION.—Mr. Luke E. Wright, American Ambassador at Tokyo, has transmitted to the Department of State at Washington a revised copy of the translation of an order by the Government of Japan relating to the organization of the South Manchurian Railway Company. The company is authorised by the order to engage in the traffic of the following railways:—Tairen-Changchun, Nankuanling-Port Arthur, Tafangshen-Liushutun, Tashiciao-Yingkou, Yentai-Yentai Coal Mine, Sukiatun-Fushun, Mukden-Antunghien, all of which must be changed to the 4′ 8.5″ gauge within three years from the date on which the company commences its operations. The company is authorized to engage in the following accessory lines of business:—Mining, especially the operation of the coal mines at Fushun and Yentai; water transportation; electrical enterprises, warehousing, etc. The total amount of the capital of the company shall be -Y-200,000,000, -Y-100,000,000 shall be furnished by the Japanese Government, and shares now owned by the Government shall be open to subscription by Japanese and Chinese subjects. The company will have its head office at Tokyo and its branch office at Dalny.

PUBLIC AND PORT WORKS, DOCKS, WHARVES, ETC.

TSINGTAU IMPROVEMENTS.—The budget of the German Colony of Tsingtau for 1907 provides for the expenditure of 2,300,000 marks on harbor improvements and 1,000,000 marks on the construction of roads, etc.

BRIDGES AT CANTON.—The Canton River Bridge Company, Ltd., is the name of the newly-organized concern with a capital of $1,000,000 that will undertake the construction of three bridges across the river at Canton. The bridges will be 75′ high from the water level and the first structure will be erected near Yaulanmun. The company's offices and workshops are on a site near the beach.

TARLAC (P. I.) DYKE.—The Philippine Commission has authorized the expenditure of ₱20,000 out of the United States Congressional Relief Fund, or as much as may be necessary, for the Tarlac dyke, in the municipality of Tarlac, Province of Tarlac, North Luzon, from the site of the old Government building to a point 600′ beyond the conjunction of the Tarlac-Victoria-rd and the Tarlac railroad station.

WATERWORKS FOR VLADIVOSTOK.—The question of a waterworks system for Vladivostok is soon to be taken up for consideration. It is suggested that manufacturers of supplies which will be required for such an undertaking make arrangements with some local firm to keep in readiness the necessary information so that when the favorable moment comes prices can be obtained by telegraph and a definite proposal submitted without delay.

NANNING IMPROVEMENTS.—The land to the south of Nanning, where the Chinese Imperial Maritime Customs and European godowns, etc., are to be located, is being levelled off and laid out in fine roads. A stone wall will be built along the riverfront for several hundred yards, thus giving a striking appearance to this far-inland treaty port. Over 300 workmen are engaged at the present time, at an average wage of 25 cents (Mexican) per day, rice included.

ROAD CONSTRUCTION, PAHANG.—The first installment of $50,000 has been appropriated by the Government of the State of Pahang, F. M. S., for the Benta-Sepan section of the main trunk road from the Ulu to the east coast. A cart road will be constructed from Benta, a point on the Pahang trunk road 16 miles from Lipis, to Kuantan. This will be a large undertaking in road-building, the distance being estimated at 150 miles. The line of this road will pass through some of the richest agricultural and mineral lands in Pahang.

SINGAPORE HARBOR IMPROVEMENT.—According to the *Singapore Free Press*, it is estimated that between 3,000 and 4,000 gals. of Jodelite will be used by the contractors, Sir John Jackson, Ltd., for treating the timber to be utilized in connection with the improvement of the Singapore Harbor. The contractors have used this preservative for similar work in many parts of the world and its efficacy in thoroughly protecting every kind of timber against the attack of white ants, teredos, dry rot and decay is no longer in doubt.

GRAVITY WATER SUPPLY, MANILA.—The two tunnel heads of the new water supply main, now being constructed at the headwaters of the Mariquina River for the City of Manila under the supervision of Major Case, Chief Engineer of Sewer and Waterworks Construction, have been connected and the tunnel is now complete. All that now remains to be done is the laying of the 42″ steel pipe which shall conduct the water from the new reservoir to the city. The tunnel connects the dam, 60′ high by 400′ in length on the crest, which closes the gorge in which 2,050,000,000 gals. of reserved water supply are to be held in readiness for Manila's use. The 4½ mile tunnel is fast being completed, 1½ miles being at present finished.

MADRAS HARBOR IMPROVEMENTS.—The new boat basin which is included in this scheme has been completed and has been brought into use, one beneficial result being the introduction of large self-propelling lighters which it had been impossible heretofore to introduce. A new import pier, well equipped with hydraulic cranes capable of dealing with 2,000 tons of cargo per day, will soon be started. The pier will lead into the new Customs shed with an area of 80,000 square feet. The new dredger *Trieton*, purchased from Ceylon, is working satisfactorily. All the berths in the harbor have been dredged now and have a depth of 28′ at low water. New low-level passenger piers have been completed. The new extension works in connection with the opening of the northeast entrance with a protecting groyne, are progressing and it is contemplated will be completed in 1910.

PUBLIC WORKS APPROPRIATIONS, PHILIPPINE ISLANDS.—The Philippine Commission has made appropriations for public works and permanent improvements, as follows:—For the extension of the water supply system at the Culion Leper Colony, ₱10,000; for the purchase of land adjoining the Exposition Grounds Manila, ₱21,028.75; for the purchase, from settlers, of improvements and rights to land required for the Iwahig Penal Settlement, ₱1,079.80; for the construction of necessary hospital buildings and their permanent equipment, for the Bureau of Prisons, ₱100,000; for the construction of buildings and their permanent equipment on the San Lazaro Hospital grounds, to provide for the care of 250 additional insane persons, ₱55,000; for the construction of provincial schoolhouses, to be allotted by the Secretary of Public Instruction, ₱300,000; for the construction of Constabulary barracks and quarters, ₱100,000; for the improvement of the trail through the mountains, connecting the completed Cebu, Toledo-rd. ₱5,000; for the reconstruction of retaining wall and wharf along the Pasig River at Malacañan, and alterations in the Governor-General's residence, ₱15,000; for grading grounds pertaining to the buildings occupied by the Bureau of Science, Manila, ₱4,060; for the construction of a residence for the Governor-General, at Baguio, Benguet, ₱30,000; for the construction of a building for the employés of the Bureau of Public Works, at Baguio, ₱5,000; for the expenses of investigations in regard to the improvement of the Port of Manila and other harbors, ₱5,000; for the construction of abutments for two wharves at the Port of Manila, ₱15,000; for the completion of the Luneta Extension fill, ₱134,306; for the construction of a sewer system for Bilibid Prison, Manila, ₱20 000; for permanent, sanitary beds for inmates of Bilibid Prison, ₱20,000; for the payment of expense of construction of warehouses at the Iwahig Penal Settlement, ₱1,700. The unexpended balance of funds for the completion of the road from Baguio to Trinidad, Benguet, is made available for expenditure as road and bridge funds for the Province of Benguet. Total appropriations for all purposes, ₱835,472.50.

SHIPBUILDING AND GENERAL MARINE MATTERS

OSAKA SHOSEN KAISHA.—The result of the workings of this company for the latter half-year of 1906 was unsatisfactory and no dividend will be paid for the period.

OSAKA SHOSEN KAISHA.—This steamship company intends to build two steamers of about 10,000 tons each with a view to opening a regular service between America and Japan.

LAUNCH OF STEAMER "EMERAUDE," HONGKONG.—The *Emeraude*, the second of four stern-wheel steamers built or building at the Hunghom establishment of the Hongkong and Whampoa Dock Company, has been successfully launched.

HONGKONG AND WHAMPOA DOCK COMPANY, LTD.—Subject to audit, the directors of this company will recommend at the forthcoming annual meeting of shareholders a dividend of 12 per cent, equal to $6 per share; pass $50,000 to Special Account and carry forward about $393,000.

STEAMER "BAN HONG LONG."—The trial trip of the steamer *Ban Hong Long*, the latest addition to the Singapore-Bangkok line, took place recently. The steamer was built on order of Messrs. Howarth Erskine, Ltd., of Singapore, and is essentially a cargo boat with a net register of 709 tons. She is capable of carrying 1,400 tons of cargo. She is owned by Mr. Low Kiok Chiong, of "Chop" Ban Hong, and on her trial trip she covered the measured mile at a mean speed of 11.387 knots.

NEW HOLT LINER "TITAN."—The new liner *Titan*, which arrived in the Far East recently from Liverpool on her maiden voyage, was built in 1906 for the Ocean Steamship Company, Ltd., by Messrs. D. and W. Henderson & Co., of Glasgow. She is sister ship of the *Cyclops* and *Bellerophon*, and about 9,000 tons gross. Her holds have seven compartments for heavy machinery and bulky goods. She has no masts or sails. There are four tall, powerful posts which act as derrick-posts, and hold ventilators two abreast, fore and aft.

MITSU BISHI DOCKYARD AND ENGINE WORKS, NAGASAKI.—Mr. H. Shoda, General Manager of the Mitsu Bishi Dockyard and Engine Works, has been transferred to the head office of the company at Tokyo, and been succeeded by Mr. H. Maruta, Assistant General Manager. The new General Manager spent some years in England studying shipbuilding and was a long time at the Mitsu Bishi Dockyard and Engine Works as Works Manager. When the Kobe yard was opened in 1905. he succeeded Mr. R. Midsutani as Assistant General Manager at Nagasaki, and has now reached what must be considered one of the most important positions in the Japanese shipbuilding world.

CAPE VARELLA WRECKS.—The Hongkong and Whampoa Dock Company's powerful tug *Robert Cooke*, and the Norddeutscher Lloyd's steamer *Wong Koi*, are still high and dry on Cape Varella beach. The tug is lying alongside the steamer and is full of water from the waves that have been continually rolling over the vessel. As far as is known there are no holes in the plates of the tug's hull. Hope of saving either stranded vessel has about been abandoned. In spite of the great inconvenience the Hongkong dock company is put at on account of the stranding of the *Robert Cooke*, its floating plant is equal to all emergencies. The powerful launches *K6* and *K7* have been called into service to replace the tug. These are being assisted by the auxiliary vessels *Edith* and *C1*. The *K7*, a new boat, has already done excellent harbor duties.

SEATTLE-CHINA STEAMSHIP SERVICE.—It is announced that North China ports are to have direct communication with Seattle. Messrs. Frank Waterhouse & Co. and Andrew Weir & Co. have arranged to begin jointly the operation of the new line immediately, using six steamships carrying from 5,500 to 12,000 tons, the latest type of the ocean freighter. A regular service is to be given between Puget Sound ports, British Columbia and Hakodate, Vladivostok, Dalny, Chefoo, Taku Bar and Newchwang, calling either way at Chemulpo, Chinampo and other Korean ports, when the inducement warrants sending the vessels there. The vessels to be used on this run are the *Gymeric* (6,200 tons), the *Boveric* (7,200 tons), the *Inveric* (7,200 tons), the *Aymeric* (8,200 tons), the *Suveric* (12,500 tons), and the *Quito* (5,500 tons). The *Suveric* and the *Gymeric* have been dispatched from Seattle and this (February) month the *Boveric* and the *Quito* are clearing. The *Inveric* is scheduled to sail in March. The *Suveric* and the *Boveric* were launched in 1906, and the *Gymeric* was put in commission in 1905. The *Quito* and *Gymeric* were built in 1900, and the *Inveric* in 1901.

KAWASAKI DOCKYARD COMPANY, KOBE.—At the recent general meeting of the Kawasaki Dockyard Company, a resolution was adopted to add to the company's business the manufacture of steam engines, railway carriages, tires, axles, electric motors, military arms and steel products, and an amendment to the Articles of Association covering the resolution was agreed upon. The net profits of the company for the last half-year amounted to -Y-459,639, including a surplus of -Y-53,367. Of this sum -Y-50,000 has been placed to the Reserve Fund and -Y-20,000 to the Special Reserve for the depreciation of building and machinery. -Y-226,000 was set aside for dividend, and -Y-56,800 for extra dividend, making a total dividend 12.56 per cent *per annum*. -Y-20,000 was devoted for bonuses to officials the balance being carried forward.

MINING, MINERALS AND THE METAL TRADES

OIL IN SIAM.—Petroleum is found in Muang Fang in the extreme north of Siam. Oil is also reported in Kedah. Siam petroleum is black in color and very viscous. It is supposed that the occurrences are geologically connected with the oil-fields of Burma.

KELANTAN GOLD DREDGING COMPANY, LTD.—This company has gone into voluntary liquidation with Mr. Cecil James Barnes, of 15 George-st, Mansion House, London, as liquidator for the purpose of winding up the business.

GOLD IN MINDANAO, P. I.—Gold in paying quantities has been discovered near Zamboanga, the capital city of the Moro Province, Philippine Islands. Surface washings show good returns in the mountains nearby. Several American miners are now prospecting the country.

AMERICAN MINING PROJECT, SIBERIA.—Mr. Lebedeff, a mining engineer, who has been engaged by a group of Russian and American capitalists and engineers, has found at the source of the Biryussa and other rivers of the Nizhneoudinsk District a vein of gold and copper manganese ore.

PETROLEUM PRODUCT OF JAPAN.—The petroleum produced in Japan is only sufficient to meet a quarter of the demand in the Empire, the remainder being supplied by Russia and America. The value of the oil imported amounts to about -Y-16,000,000 *per annum*, of which -Y-10,000,000 represent Russian oil and -Y-6,000,000 American oil.

CHINA AND MANCHURIAN COAL-FIELDS.—The Chinese Government has again demanded that the Japanese return the Fushun and Yentai mines to Chinese control in April next, the date on which the Japanese agreed to withdraw all troops from Manchuria. The Chinese also demand the return of the Penchihu mine now being worked by the Japanese firm of Okura.

MACHINE OIL WORKS, EAST BORNEO.—It was recently announced that the Royal Langkat Petroleum Company intended to establish extensive machine oil works at Singapore, but now that the owners have obtained a controlling interest in the Shell Company, another idea finds favor, and the works will be established in East Borneo on the concession of the Shell Company.

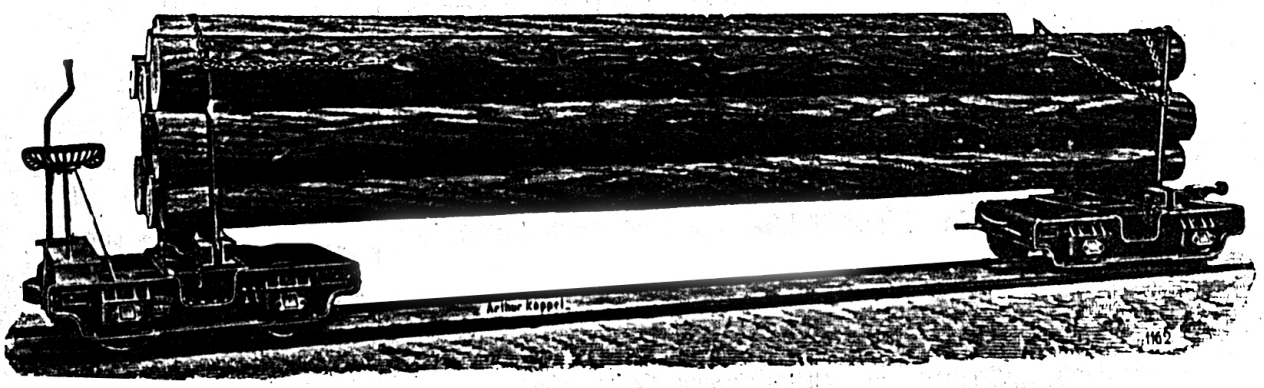
WEIHAIWEI GOLD MINING COMPANY, LTD.—At a recent extraordinary general meeting in Shanghai, the stockholders of this company adopted a resolution to the effect that it having been proved to the satisfaction of the shareholders that the company could not by reason of its liabilities continue in business, the company would voluntarily wind up the concern. Mr. Louis Rudolph Burkhardt, of Shanghai, was appointed liquidator.

SIAMESE TIN SYNDICATE, LTD.—This company has been registered in London by Messrs. Francis & Crookenden, 3 New Square, Lincoln's Inn, W. C., with a capital of £120,000 in £1 shares. The object of the company is to acquire mining claims, licenses, leases, concessions and rights, mill sites and water, petroleum and other rights and properties in Siam or elsewhere, and to carry on the business of tin and general miners, explorers, metallurgists financiers, promoters, etc.

KINTA TIN MINES, LTD.—At the sixth annual general meeting of the Kinta Tin Mines, Ltd., held recently in London, it was announced that the production of ore on this property increased during the year under review from 2,988 piculs to 3,238 piculs, and the average price obtained was better by $3.76 per picul, resulting in an increase of $23,764. The net profit was £15,247 3s 5d. Against this interim dividends amounting to 17 per cent were paid, and a final 2½ per cent for the year.

Arnhold, Karberg & Co.

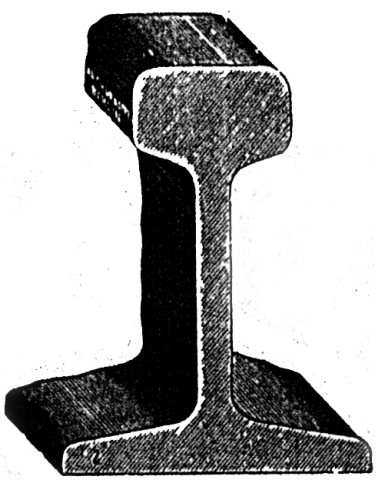
Shanghai, Hongkong, Canton, Hankow, Wuhu, Chungking, Tientsin, Tsingtau, Newchwang.



LARGE STOCK OF LIGHT RAILWAY MATERIAL.—WOODWORKING MACHINERY.—GASOLENE ENGINES.—FIBRO CEMENT ROOFING SLATES.—STEAM PUMPS

General Agents for

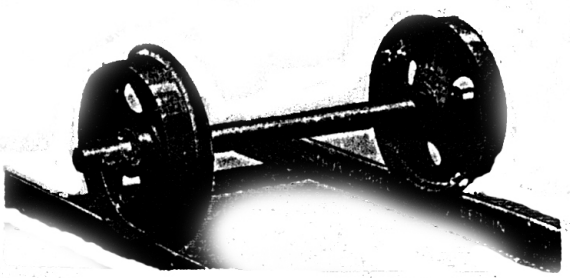
Allgemeine Elektricitaets Gesellschaft (A.E.G.) Berlin.
Electric Train Lighting Co. Berlin.
Arthur Koppel Ltd. Berlin (Railway Material)
Berliner Maschinenbau A. G. vorm.
Schwarzkopff (Motors, Torpedo and Mining Material, etc.)
A. Borsig, Tegel-Berlin (Engines, Pumps, Boilers, Ice Machines, etc.)
Deutsche Waffen and Munitions fabriken. Karlsruhe (Arms, Mint Factories, etc.)
Waffenfabrik Mauser A. G. Oberndorf-Neckar Arms Works.



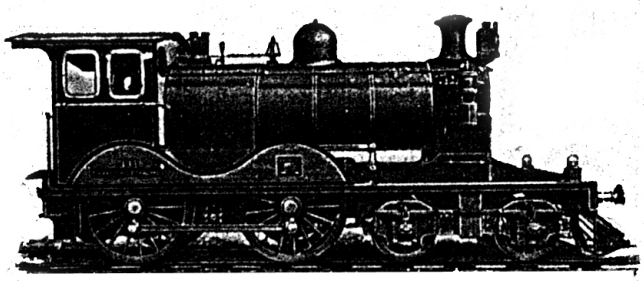
RAIL

General Agents for

Skoda-Werke A. G. Pilsen
Arms Works, Material for Arsenals.
Ludw. Loewe A. G. Berlin (Machine Tools)
Stettiner Maschinenbau A. G. Vulcan (Marine Contractors)
Jonas and Colver Ltd. Sheffield (Specialities for Arsenals)
Asa Lees and Co., Ltd., Oldham (Equipments for Cotton Mills)
Carl Meissner Hamburg (Motor Boats)
Rendrock Powder Co., New York (Explosives Racarock)
General Managers of the New Engineering and Shipbuilding Works, Ltd., Shanghai.



RAILWAY WHEELS & AXLE



RAILWAY LOCOMOTIVE

Estimates and Prices Given on Application at all Head Offices.

intention is to bridge the stream some little distance below the town of Wiju, and the western end of the structure which it is proposed to erect will be situated at Shin-Wiju, on the west bank, not far from Antung, which, together with Ta-tung-kou, a few miles to the south, was recently opened to the trade of all nations under the treaties made by China with America and with Japan in October, 1903. The place at which it is proposed to provide the bridge is about five miles down stream from that which was the scene of the crossing of General Kuroki's forces on April 30th, 1904, and Shin-Wiju—that is, "New Wiju"—stands just beneath the heights which the Russian batteries occupied to the north of Antung. The length of the bridge, crossing as it will the main channel—the others are all but empty save in the rainy season—is planned to be 3,345′. Embankments will be required on either side, but the engineering difficulties are not expected to be of an extraordinary character, and are by no means insurmountable. Possibly the estimate of about $1,200,000 gold for the entire work will prove to be a sufficiently liberal one. Politically this bridging of the Yalu is not devoid of a certain degree of importance, inasmuch as Japan will be able, if necessary, to send troops as far as Mukden, at all events, without touching the Eastern Chinese Railway, which both Russia and Japan are debarred from using for the purposes of military transport, without violation of the Portsmouth Treaty, and which would constitute an act of war. On the other hand, Japan is bound not to increase her forces in Manchuria beyond a certain limited number, and were she to do so Russia would assuredly, and with justice, lodge a complaint. It is an advantage in every way, and to all, that there will presently be an alternative route to Mukden, however, and progress of this kind is to be welcomed on every side in consideration of the greater facilities that will accrue to the commerce of all nations.

CANTON-HANKOW RAILWAY, A CHINESE PUZZLE

The Hongkong correspondent of the *North-China Daily News* says it is often stated that the path of true love is beset with thorns. It may be affirmed that the building of the Canton-Hankow Railway is beset with both thorns and briars, and, that those who are interested in, and selected for, the furthering of the enterprise, are the very persons who have done much to retard its success. The present situation is characteristically Chinese, and could hardly have been created by less zigzag minds. It is confusion worse confounded. It is difficult for a foreigner, relying only on reports published in the native press, to apprehend clearly and state succinctly the situation. The Chinese mind is needed. The salient points, however, seem to have been something like this:—

When Viceroy Tsên was reigning in the Two Kuang, two Hongkong Chinese gentlemen, who, as shareholders in the railway company, had great influence, and who further had in their possession large sums of money, which Hongkong Chinese had subscribed towards the funds of the enterprise, refused to hand over the money at the central office in Canton when called upon to do so. They demanded first of all a public audit of the accounts already received, and more than insinuated that everything might not be right. As is well known Tsên was removed, and H. E. Chou Fu assumed the reins of power, and, in order that these suspicions might be verified or removed, ordered that the audit be made. It has been carried through, and as far as the public is aware, there appear to be no solid grounds for the suspicions that were aroused. When these two gentlemen declined to hand over the funds, the company naturally resented the action, and so promptly expunged their names from the list of shareholders. After the public audit had more or less testified to the straightforwardness of everything, they wished to have their names reinstated. At this the directors of the company demurred, and indeed refused point blank. But since then another difficulty has arisen, which threatens to be even more disturbing than that mentioned above. At a big meeting held in the Kuang Tsai Hospital, Canton, there was a stirring time. A certain Lao Tsz-liang charged the Canton officials with wholesale bribery. It was insinuated that in addition to the Viceroy, Yu, the Provincial Treasurer, Chu, the Provincial Judge, and Taotai Shên had all been guilty of receiving bribes at the hands of the directors of the railway company. The meeting was supposed to be in camera, but somehow a report of the meeting found its way into the pages of *The Political News;* one of the Canton dailies. Of course there was a tremendous outburst of anger, on the part of the officials, whose honesty had been impugned, and a troop of soldiers was at once ordered to the room of the editor who, under safe escort, was compelled to pay a visit to the magistrate's yamên. Here in self-defence he made a clean breast of his part in the transaction, and so the author of the aspersions, Lao Tsz-liang, was arrested, and is now in custody. The officials, it is reported, are furious and consumed by a white-hot rage. They have determined that he shall continue in durance vile until he can produce the very witness who actually saw bribes paid over into the hands of the officials. Further, an attempt has been made to confuse the issue, by insinuating that the secret meeting held in the Kuang Tsai Hospital was sanctioned by the general body of shareholders and directors, whose official representatives in Canton are the Seventy-Two Hongs. The latter have angrily repudiated this sanction. The Seventy-Two Hongs have not only done this, but they have taken vigorous steps to prevent the reinstallation of the two Hongkong Chinese, whose action first of all started the trouble among the shareholders. A few days ago arrangements were made whereby the public proclamation, posted upon the walls of their office, might be photographed just as it was published. The public proclamation denounced the insinuations of the two Hongkong Chinese, and, at the same time, stated in unmistakeable language, that the two agitators should not be reinstated in their old position. All this has been photographed piece by piece, and after the several sections have been arranged, so as to form one complete whole, the proclamation will be forwarded by the imperial post to Peking, for the information of the several boards which are supposed to be interested in the construction of the railway and also have authority vested in them to direct more or less effectively the course of events. Meanwhile ex-Viceroy Tsên has just sent down a long telegram from Shanghai, in which he has advised patience, and deprecates anything like summary and unpremeditated action, either on the part of the officials or the shareholders.

It is easily seen from this brief summary of the reported situation, that affairs have become as inextricably involved, as rings in the hands of a clever conjurer. They can only be separated by the same minds that have produced the confusion. It is often asserted that where there is smoke there must be fire: it is certain that where there is smoke there may be fire, and no one can deny that there is a considerable volume of smoke here. Chan Kang-yu, and his companion Yung, whose action in refusing to hand over the funds led to all that has followed, are by no means without influence among the Chinese in Hongkong and are unlikely to have taken the determined stand without some solid ground for their suspicions and action. At first, when the Viceroy ordered that a public audit be made, some of the directors were reported to be averse thereto and this aversion was animadverted upon in the Chinese press. The more difficult matter to straighten out is the charge of peculation made against the provincial officials *en masse*. Lao Tsz-liang should have had indubitable evidence of such bribery, or he should have kept his mouth closed. He apparently had forgotten that what is spoken in secret in China to-day, as in more favored lands, may to-morrow be proclaimed upon the housetop, and therefore should have been less generous in his insinuations.

Peculation and squeezing amongst Chinese officials are not unknown to the initiated, but the day is dawning when those who are guilty of such shady transactions may read a report thereof and a criticism thereon at their early meal on the following morning. A few years ago when there were no newspapers, such beings were known only to the few, and no one was greatly disturbed, because, probably, all to whom the facts were known, had been, at one time or another, tarred with the same brush. It is not so to-day. What is greatly to be regretted is that the affair should have become entangled into this confusion, when facts call loudly for a straightforward course. When a great enterprise like this is to be put through, confidence in the reliability of the directors should not be undermined; absolute faith in the integrity of the leaders is a *sine qua non* of success. At this juncture when China is making such frantic efforts in so many ways to arrange her affairs so that she may hold up her head among the nations and would regard herself as moving in line with Japan, in the forefront of civilization, an exhibition of this kind, with or without foundation, is much to be deplored, for mud cannot be thrown without either the thrower, or those at whom it is thrown being smirched thereby. Mud-throwing, moreover, is not an occupation that should be indulged in by men whose ambition should be to push forward a great enterprise, but by foolish boys, who are either angry with each other, or captivated by love of a pastime, which is somewhat ignoble.

THE EASTERN MINING COMPANY

It is gratifying to such as have the best interests of the Islands at heart, to see efforts being made toward actual development, and especially so in the field of our rich mineral deposits.

We refer particularly to the establishment of a New York office by A. M. Heise, the President of the Eastern Mining Company and his work in securing the necessary additional capital for the enlargement of its output. The gold-fields of Masbate have passed the days of prospect, and the numerous claims, and several companies actually at work attest the value of the field. Only capital is needed for profitable development, and it is not to be found in Manila.

The Eastern Mining Company received its first impulse and financial support from the slender capital available in Manila and it speaks volumes for the confidence reposed in the enterprise when it is known that the list of stockholders contains the names of many of the most prominent men in the Islands. An amount approximating $100,000, all subscribed for in the Philippines, has been spent in developing the properties, which embrace some 16 quartz claims, all demonstrated, and 30 river placer claims

The Company has had a 5 stamp mill in operation for the last two years and the development now warrants the construction and installation of a larger plant. There is sufficient ore to supply a very large plant so it has been concluded to erect a 40 stamp mill capable of treating 200 tons of ore per day. With the labor cost of 36 cents per day, and food the cost of milling should not exceed $2.00 per ton.

The Company is selling just enough stock to pay for this equipment which will approximate $125,000 and a large proportion has already been placed.

However, it is a long way from Masbate to Manila, and from Manila to Wall Street and with the present boom in Nevada gold mining stocks it is not an easy matter to interest investors.

The REVIEW is not an agent for stock jobbing Companies and will not knowingly commit itself to the indorsement of every scheme originating in the Islands, but knowing as we do of the high character and standing of the prime movers in this concern and from official assays and reports on the mines we have no hesitation in giving the enterprise our cordial support and indorsement.

FOREIGNERS IN CHINA

The foreign population in China in 1906 is estimated by Mr. Thomas Sammons, American Consul-General at Newchwang, at 46,000. This includes 6,454 at Hongkong (British territory), 1,432 at Tsingtao (German), and 7,698 at Newchwang, but does not include the balance of Manchuria and Mongolia By figuring 20,000 to 30,000 Japanese, aside from railway guards, in Southern Manchuria, and as many Russians in the north and Mongolia, the grand total would be over 100,000 foreigners. It is estimated that less than 8,000,000 Chinese are living outside of their native land, 75 per cent of whom are accounted for in Formosa, Siam and the Malay Peninsula.

FAR EASTERN ENGINEERING, CONSTRUCTION, COMMERCIAL AND FINANCIAL NEWS

ELECTRIC RAILWAYS, LIGHTING, POWER, ETC.

OSAKA ELECTRIC LIGHT COMPANY.—This company has decided to increase its present capital of -Y-4,000,000 to -Y-15,000,000.

PYENGYANG-CHINNAMPO RAILWAY.—The latest announcement about this line is that the Japanese are organising a private company to build an electric road between the two places. The estimated expense will be -Y-1,800,000.

ELECTRIC TRAMWAY, KIANGMOON, SOUTH CHINA.—Mr. Ip Yan, manager of the Wa Yek Company, Hongkong, proposes to start an electric tramway company at Kiangmoon, with a capital of $1,200,000 Mexican currency, and has asked for a concession to this end.

YOKOHAMA ELECTRIC RAILWAY.—Mr. Yasuda Zenjiro has purchased more than half the shares of the Yokohama Electric Railway and is trying to buy up those yet outstanding. The millionaire's object is to extend the present line as far as Nagoya along the Tokaido, and thence to Osaka *via* Ise, while another line will be laid between Nagoya and Kyoto. The estimated cost of the undertaking reaches the gigantic figures of -Y-70,000,000.

FORT MCKINLEY LIGHTING SYSTEM, P. I.—Messrs. Germann & Co., of Manila, have secured the contract from the War Department for the installation of a complete electric-lighting system at Fort McKinley, the great military reservation near Manila. Their bid was $47,990 gold. Other bids were offered as follows:—Messrs. Castle Bros.-Wolf & Sons, $48,960; Messrs. Grant & Co., $61,448, and the Bryan-Landon Company, $47,600. The last-named firm was the lowest bidder but there was a flaw in its bid which caused it to be turned down.

RAILWAYS AND RAILWAY SUPPLIES

KIANGSU PROVINCIAL RAILWAY. The first section of the provincial railway from Shanghai to Hsiakow has been inaugurated, and construction is expected to proceed without interruption.

KIANGSI RAILWAY.—A draft contract of a loan of Tls. 4,000,000 from Belgium for the Nanchang-Kiukiang Railway has been sent to the Ministry of Posts and Communications at Peking for approval by the Director-General of the line.

KAIFENGFU-LOYANG RAILWAY.—This railway in Honan is divided into two parts—eastern and western—the eastern being from Chenchow to Kaifengfu and the western from Chenchowfu to Loyangfu. The eastern section is reported completed and the western to be about ready to be opened.

CANTON-AMOY LINE.—The survey of the railway from Canton to Amoy—the Kuang-Hsia line—is in progress. It will traverse eastward from Canton through Polo, Kuishan, the Haifeng, Lufeng, Hweilai and Kiehyang prefectures, to Ch'aochou-fu, and from there through the Haiyang and Jaop'ing prefectures in Fukien, and so on to Amoy.

FOKIEN PROVINCE RAILWAYS.—Cheng Pao-seng, a Chinese railway official, has been touring the Straits Settlements, the Federated Malay States, Rangoon and Java, of late, collecting money for railways in Fokien Province, China. Singapore Chinese alone subscribed 100,000 fully paid £1 shares. The scrip bears interest, immediately, at the rate of 6 per cent *per annum*.

SZECHUAN-HANKOW RAILWAY.—The British and Chinese Corporation has offered to find funds for the construction and equipment of the Szechuan-Hankow Railway, which would be the first section of the Szechuan-Tibet line. The gentry and student class are, as usual, opposing the proposal, and are sending representatives to Peking to fight any agreement to this end.

RAILWAY CONSTRUCTION IN CHINA.—China at the moment, says *The Peking and Tientsin Times*, has many railway schemes, most of which are being watched with interest. Few, if any, however, will come to anything without the assistance of foreign capital. A loan of Tls. 1,000,000 is now being negotiated with a foreign firm for the Kiukiang-Nanchang line, with every prospect of success.

YUET HAN (CHINA) RAILWAY COMPANY.—The President and Vice-President of this enterprise have been denounced to the Throne for conspiracy and corruption. They are accused of the crime of making use of the monies of the company through the names of accomplices and "instruments." They are also blamed for jeopardising the future success of the railway. The Throne has ordered a thorough investigation of the charges.

YUET-HAN RAILWAY.—A Canton telegram declares that the Mercantile Administration of the Kwangtung Section of the Yuet-Han Railway recently sent a message to the Viceroy of the Province asking him to come from Macao where he was staying and "save the railway from collapse." The message added that the contractor who undertook to reclaim for the company certain portions of the foreshore has, after borrowing large sums and ceasing work, been handed over to the Namhoi magistrate to be dealt with according to law.

PEKING-HANKOW RAILWAY.—The present available stock of freight cars on this line is inadequate to cope with the traffic, especially from the Province of Honan, which is pouring its produce into the Yangtsze Valley for shipment at Hankow. An excellent bituminous coal is found in the District of Liu-Cheng Hsien, near the Ching-Huan Railway. The colliery is joint foreign and Chinese worked, and coal from it can be laid down by rail in Peking at $9 Mexican per ton. A new line is now being constructed which is to link up the Province of Shensi with the Ching-Huan Railway at Chengchou, while another is being proceeded with which will tap the rich mineral fields of Shensi, and act as a feeder to the Cheng-Huan Railway. It is expected that it will be completed this year.

SOUTH MANCHURIAN RAILWAY COMPANY.—The *Kobé Herald* announces the appointment of the following directory of the South Manchurian Railway Company:—Messrs. Kunisawa Shinbei, Kiyono Chotaro, Kubota Katsumi, Inudzuka Shintaro, Tanaka Seijiro and Nonomura Kingoro. Mr. Nakamura Jeko, Director of the Financial and General Affairs Bureau of the Formosan Government, has been appointed Vice-president of the company, and Mr, Kimigewa has the appointment of Chief Engineer. The matter relating to the allotment to the shareholders of 200,000 shares, the company's first issue, and the first payment on the shares, have been duly completed. Five hundred thousand shares have been allotted to the Japanese Government as representing the amount of -Y-100,000,000, the Government's share of the capital. The interest on the sums deposited as security in connection with the application for shares have reached -Y-1,170,810. This sum will become a part of the company's finances.

CHINESE RAILWAY DIRECTORS-GENERAL.—Prior to the formation of the Ministry of Posts and Communications, at Peking, H. E. Tang Shao-yi was Director-General of the Peking-Hankow Railway, the Peking-Kalgan Railway, the Shanghai Railway, and the Imperial Railways of North China, the latter running from Peking to Shanhaikuan and thence to Newchwang in one direction and Hsinmintun in another. Since his admission into the Ministry of Posts and Communications as Senior Vice-President, his office as Director General was abolished and the railways above-named were put under the immediate control of the ministry. On the recommendation of the ministry the Peking Government is going to appoint a Director-General to each of the four railways in question, to be under the supervision of the President and the two Vice-Presidents of the same ministry. These Directors-General are each to be assisted by a Director selected by the ministry with the approval of the Government.

KOWLOON-CANTON RAILWAY.—Construction work in the New Territory of Hongkong is being pushed ahead as rapidly as possible on this line, according to the *China Mail*. The roadbed is now almost continuous between Fan Ling and a point near the Chinese border, except for numerous bridges and culverts that will be necessary. Over the whole of this distance the embankment has been raised from 6 to 12' and as in the rainy season the low-lying ground in the vicinity rapidly becomes flooded special precautions as to drainage are necessary. The embankments are being made from earth taken from the surrounding fields and from a trench dug alongside of the line, and among people who know the soil it is considered doubtful whether or not they will stand the rainy season. This earth possesses peculiar properties, and while in dry weather it is as hard as cement, in the rainy season it speedily becomes soft and spongey. At the stream at the foot of the hills between the paddy fields crossed after leaving Cheung Shui and Tai Po a bridge of considerable length will be necessary, and the line for some distance will be laid on a cutting out of the side of the hills. Everywhere between Sam Chun and Tai Po groups of men and women are hard at work breaking metal to ballast the line, and brick-making has become quite a flourishing industry in anticipation of the demand for bridge building. The line between Tai Po and Lok-lo-ha does not appear to have made much more progress so far, but the Sha-tin Valley, right up to the mouth of the tunnel. is alive with workers.

IMPERIAL CHINESE RAILWAY BONDS.—On January 9th the Hongkong and Shanghai Banking Corporation invited subscriptions for £650,000 5 per cent Sterling Bonds of the Imperial Chinese Railways—Shanghai-Nanking-Line —being part of a loan for £3,250,000, of which £2,250,000 had been issued. The bonds are £100 each, and the first coupon for £1, being interest at the rate of 5 per cent *per annum* on the instalments, will be payable on June 1st next. The subscription price is par, and the loan is for 50 years from June, 1903, but the bonds are redeemable at six months' notice after 12½ years, and up to 25 years at 102½ per cent, and after 25 years at par at the option of the Chinese Government. In addition to the unconditional guarantee of the loan by the Chinese Government, both as to principal and interest, it is provided by the agreement that in the event of default in payment of principal or interest, the whole of the railway, with all its appurtenances, shall be handed over to the British and Chinese Corporation, to be dealt with by it in such manner as will ensure the proper protection of the interests of the bondholders. The loan agreement provides that in any negotiations between the railway administration and the British and Chinese Corporation, the corporation shall represent the bondholders and be empowered to act on their behalf. It also reserves the power to make a further temporary issue of £250,000 bonds at 6 per cent *per annum* for the purposes of paying for the necessary land for the railway, to rank *pari passu* with the present and former issues as regards guarantee and security, but to be redeemable at par at any time on giving six months' notice. The present loan is to provide further funds for construction and equipment and a report by the consulting engineers on the present position of the railway is included in the prospectus. According to the prospectus the subscription list which was opened January 9th was to be closed at or before 4 o'clock on the 11th. The bonds, however, were so largely over subscribed that the list for London was closed at 3 o'clock on the first day. It is stated that one application alone was for the sum offered. The bonds are quoted at 1 premium.

PUBLIC AND PORT WORKS, DOCKS, WHARVES, ETC.

RIVER AND CANAL CONSERVANCY, CHINA.—The Ministry of Agriculture, Works and Commerce, at Peking has memorialised the Throne recommending the necessity for establishing a Conservancy for Rivers and Canals throughout the whole Empire, with headquarters at Peking, under a special High Commissioner, or Inspector-General.

MANILA SEWER AND WATERWORKS CONSTRUCTION BONDS.—Two millions of dollars worth of sewer and waterworks construction bonds for the City of Manila were sold recently in Washington by the Bureau of Insular Affairs. The total amount of the sale was $2,117,-005, gold, the relatively low price being due to existing conditions of the money market. The purchasers and the premiums were as follows:—$15,000 to William Larrabee, Clermont, Ia., at 1.091; $30,000 to R. W. Rohler, Detroit, Mich., at 1.09; $1,955,000 to William A. Read & Co., New York City, at 1.05777.

TOKYO HARBOR WORKS.—The Tokyo Harbor Works Investigation Committee has submitted to the City Assembly its Harbor Works Bill. It is proposed to raise a foreign loan of £4,890,000 on the London market in connection with this scheme. The loan is to be raised in three installments, £2,000,000 in 1907, £2,000,-000 in 1911, and £890,000 in 1914. It is proposed to raise the loan at more than £96 per £100 face value and the rate of interest is to be 5 per cent. The documents pertaining to the present foreign scheme have been sent to the Governor of Tokyo for his consideration, and afterwards the Mayor of Tokyo will apply to the Ministers of Finance and Home Affairs for their approval.

PUBLIC WORKS, PAHANG.—Provision is made in the Pahang, F. M. S., estimates for a long list of works and buildings, among them being $41,500 for a water supply for Bentong, a thriving mining center; $30,000 for a new *astina* for the Sultan of Pekan; and $10,000 for town drainage at Bentong. The other principal works include $5,000 for a house for the Executive Engineer at Kuantan, $3,500 for a surveyor at Bentong, and $9,000 for clerks' quarters at Lipis, Raub and Bentong. Police buildings, including stations at Pekan and at the new town of Gambang, in the Kuantan District, are estimated to cost $14,150. Municipal services account for $12,475, which sum includes $6,200 for the extension of the Kuantan water supply to the European Quarter at Teluk Sisek. Nine thousand dollars are provided for various hospital buildings, including an additional ward at Bentong. For new public offices and for extensions to existing one $10,200 are voted, of which $5,000 are for Pekan. Provision of $4,000 is made for a landing stage at Kuala Kuantan.

NEW DREDGER FOR PENANG, S. S.—For the improvement of the Port of Penang, Messrs. William Simons, Ltd., Renfrew, have launched a powerful bow-well, center-ladder, bucket, barge-loading dredger named the *Crab*. The dredger has been constructed under the direction of Messrs. Coode Son & Matthews, civil engineers of Westminster, assisted by Mr. Robert Anderson, Renfrew, local inspector. The *Crab* is classed at Lloyds. Propelling power is provided by one set of triple-expansion surface-condensing engines, supplied with steam from a steel boiler of Scotch type, constructed for a working pressure of 160 lbs. per square inch, according to *The London and China Express*. The auxiliary plants of the most modern type, including an independent circulating pump for circulating purposes, independent feed donkey pumps, evaporator, etc. and is fitted up in the engine room. The dredger's buckets have a total dredging capacity of 350 tons per hour and the maximum dredging capacity of 30' below water level. Suitable clutches are provided for disengaging to and from the propelling engines and dredging gear, the arrangement of the latter allowing the dredger to make its own passage through banks and shoals. Comfortable quarters are provided for the officers and crew, and a complete electric light installation is fitted up on board, so that the dredger may be kept continuously at work, day and night, if required.

SHIPBUILDING AND GENERAL MARINE MATTERS

"AWA-MARU" IN DRYDOCK.—The N. Y. K. steamer *Awa-maru*, which stranded at Redcar, December 27th, is now in drydock at Newcastle-on-Tyne, where she will be overhauled and made seaworthy.

JAPANESE SHIPPING.—Official returns show that there were 1,492 steamships in Japan at the end of December, displacing 1,034,455.96 tons gross and 654,243.48 tons registered, whereof there were one vessel over 7,000 tons gross, twenty 6,000-7,000 tons, six 5,000-6,000, thirteen 4,000-5,000, forty-two 3,000-4,000, 108 2,000-3,000 and 131 1,000-2,000. Sailing-vessels numbered 4,044, displacing 346,262.02 tons gross and 324,668.38 tons registered, whereof one each was of over 3,000 tons gross and of 500-1,000. There was no ship between 1,000-2,000 tons.

LAUNCH OF THE "TJIKINI."—The steamer *Tjikini*, constructed for the Java, China and Japan Line, has been

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ELECTRIC RAILWAYS, LIGHTING, POWER, ETC.

TRAMWAY FOR NAGASAKI.—Application has been made to the Minister of Communications, reports the *Nagasaki Press*, for permission to construct an electric tramway in Nagasaki. The main line would connect Urakami and Oura and a branch line would run round to Inasa. The promoters belong to Nagasaki and the capital required is estimated at Yen 1,200,000.

ELECTRIC RAILWAY STATISTICS.—Statistics covering the electric railways of the United States at the end of 1905 indicate that the trackage aggregated 32,517 miles (including elevated railway), with 63,391 motor cars and 13,059 trail and service cars. Cable, steam dummy and horse lines aggregate only 633 miles, with 1,084 grip cars or locomotives and 2,217 trail or horse cars. The total capital stock was $1,844,565,136.

NEW WAVE MOTOR.—At Young's Pier, Atlantic City, a new wave motor is lighting a portion of the pier, notes *The Western Electrician* (Chicago, February 9). It is the first really successful contrivance of the kind in use. "It is a big float or buoy and so arranged that the motion of the swells will work it, no matter at what angle the waves run. This motor drives a compressed-air engine, which fills large tanks. The tanks in turn feed a compressed-air motor, which drives the dynamo that furnishes the current for the lighting."

MONSTER WHISTLE.—A whistle that can be heard normally at ten miles, and at twenty with a strong wind, has been installed by the East St. Louis and Suburban Electric Railway Company at the power house, where the company's machine shops and car barns are located. The greatest modern siren comprises three whistles. The largest is almost six feet in height and nearly as big around as a man. On each side of the main one is a smaller whistle. This big triple whistler is connected with an electric clock, regulated by the Government standard time sent out from Washington. The electric lock with the whistle is guaranteed not to vary five seconds in time a year.

ELECTRIC LIGHT DONT'S.—The following "Electric Light Dont's" are contributed by Ernest Filer to *The Daily News*, Chicago: "Don't let the office boy or any one else who does not understand make changes in electric wiring or lights. They may do the very thing they ought not. Don't pull a lamp hung by a flexible cord to one side with a wire and then fasten to a gas-pipe. I have seen a wire become red hot in this manner. If the lamp hung by a cord must be pulled over, use a string. Don't wrap paper around a lamp for a shade. You might go home and forget it and a fire might be started from the heat. Use a glass or metal shade. That is what they are for. Don't let a socket on a fixture hang loose. Have it repaired. Otherwise it may cause trouble where least expected. Don't try to save a little by running flexible wires over boxes, partitions, and into closets. Have permanent wires installed. These flexible wires used this way are dangerous."

ELECTRIC EXTENSIONS AT YOKOHAMA.—An investigation committee of the Yokohama City Assembly met on March 11 to discuss the petition of the Yokohama Electric Railway Company for leave to extend its line from Nishinohashi to Hanazakicho, via Kurumabashi, Chojamachi and Hinodecho; another from Nakamuracho to Honmoku, via Ishikawa, Motomachi and Daikanzaka, and another from the front of Messrs. Jardine, Matheson & Co., to Kamakura and Negishi via Bund, and Honmoku. It was decided at the committee meeting to make a survey of the places named.

Messrs. K. Inouye, G. Usui, M. Tsuchida, M. Yokoyama, Y. Hagino and others have promoted the establishment of a new electric tramway company for Yokohama with 1½ million yen capital under the style of the Yokohama Shigai Denki Tetsudo Kabushiki Kaisha. Application for official permission has already been made to the authorities. The company proposes to lay a line from Kamenohashi to Aokimachi via Matsukahehcodori, Hanazakicho and Hiranumamachi; another line from Midoribashi to Kamenohashi via Nogemachi, Hinodecho, Suyeyoshicho, Minami-Yoshidamachi, Miyoshicho and Nakamura-machi, and another line from Aokimachi to Hodogoya via Sengenhsita.—*Japan Advertiser*.

RAILWAYS AND RAILWAY SUPPLIES

SHANTUNG RAILWAYS.—H. E. Yang Shih-hsiang, Governor of Shantung, has approved an application by the Kiaochow-Chinan-fu Railway Co., for permission to construct a railway from Yih-hsien to Tien Chwang-ho, which will be a branch of the Company's main line.

CHENGLING TAIYUANFU RAILWAY.—As an enormous sum was required to buy back for the Peking-Hankow Railway, the Chinese Government is now considering instead the redemption of the Chengling Taiyuenfu Railway, which has been built partly by Russian capital.

REDEMPTION OF PEKING-HANKOW RAILWAY.—A dispatch from Peking states that the board of communications held a conference there recently on the subject of redemption of the Peking-Hankow Railway and had come to a decision as to the question of management.

PROPOSED RAILROAD AT YANGCHOW.—A score of wealthy salt-merchants in Yangchow are interesting themselves in a project to construct a railway from Icheng to Taschow, principally for the transport of salt. These merchants have subscribed two million taels for the enterprise, and have appointed Their Excellencies Lin Men and Chu Yu-chi to manage it.

TRANS-SIBERIAN RAILWAY.—The service on the Trans-Siberian Railway has been increased to three express trains a week from Vladivostok to Moscow and three from Moscow to Vladivostok. Trains arrive in Vladivostok from Moscow on Tuesdays, Wednesdays and Friday at 11:45 a. m. The trains arriving on Wednesdays and leaving on Fridays belong to the International Sleeping Car Co.

ANAM-YUNNAN RAILWAY COMPANY OBSTRUCTED.—The French minister at Peking has filed a protest with the Wai-wu-pu in which he asks for protection against the tribes of the township of Mangu, Yunnan province, who have repeatedly obstructed the construction. French troops are reported to have been distributed among the different railway stations in Yunnan awaiting some definite action by the viceroy.

SHANGHAI-NANKING RAILWAY.—According to a coast exchange the Shanghai-Nanking Railway will open the line between Wusieh and Changchow for passenger traffic about May first. The company has ordered 10,000 tons of steel rails from the Hanyang Iron and Steel Works for immediate delivery. The line from Wusieh to Changchow was announced early in the month as open for the carrying of freight April 10.

HEILUNGCHIANG RAILWAYS.—H. E. Chun Teh-chuan, Tartar-General of Heilungchiang, has informed the Central Government that the gentry of that province have subscribed Tls. 2,000,000 towards the cost of the proposed Tsitsihar-Aigun railway. The first section, as far as An-chang has been surveyed and a great quantity of material has already been provided. The sleepers will be supplied by the Province and the rails will be obtained from the Hangyang Ironworks.

KIRIN-CHANGCHUN RAILWAY.—The governor of Kirin opposes the proposition made by the Russians and the Japanese that the Kirin-Changchung line be built by capital contributed jointly by Russian, Chinese and Japanese capitalists and has requested the Wai-wu-pu to persuade the Russian and Japanese governments to withdraw their request. This indicates that the Chinese are anxious to build the road with Chinese capital and develop Kirin without outside help.

DOUBLING TOKAIDO RAILWAY.—The work of doubling the Tokaido railway is progressing. The section between Kiyosu and Kisogawa, a distance of 9 miles 6 chains, was doubled on March 1, while the section between Nagoya and Biwajima, a distance of 2½ miles, and also that between Ofu and Otaka, a distance of 4 miles, will be completely doubled by the end of this month. The section between Otaka and Atsuta, a distance of 4 miles, will be doubled in May.—*Japan Advertiser*.

MONGOLIA RAILWAYS.—Peking advices state that although there has been a long discussion in the Grand Council respecting the proposal to construct a railway from Kalgan to Kulun, in Mongolia, the project has not yet been sanctioned. H. E. Councillor Ling Shao-nien has been urgently recommending the plan to their Majesties, who, it is said, on the advice of H. E. Tang Shaoyi, are prepared to approve it. The work will probably be undertaken after the completion of the Peking-Kalgan line.

BIG ORDER FOR CARS.—The purchasing agent of the Pennsylvania Railroad has invited bids for the construction of 5,000 cars. Their estimated cost is $6,000,000. With the placing of this order, the company will have ordered within the last two years nearly 60,000 additional freight cars of various types. It is also said that the company is getting better service out of its cars than ever before. The average movement of its cars per day in 1904 was 16.52 miles, while for 1906 the average movement was 27.19 miles a day.—*Commercial America*.

THE CANTON-HANKOW RAILWAY.—Advices from Canton, dated March 13, state that the local gentry and the shareholders in the Canton-Hankow Railway continue to fight and wrangle with each other, and that affairs in connection with the enterprise are practically at a deadlock. Contrary to expectation nothing has been settled since the Viceroy Chou-fu arrived, and no progress can now be looked for until the Ministry of Posts and Communications intervenes or until a special commission is appointed by the government to mediate between the wrangling factions.

CANTON-KOWLOON RAILWAY.—Taotai Wên Ho and Lai Kwok Lin have submitted a telegraphic suggestion to H. E. the Viceroy for his approval in connection with the soliciting of subscriptions for shares of the Canton-Kowloon Railway Company. The suggestion is as follows:—They proposed to temporarily open a register for shares of $10 each at the Chinese Imperial Telegraph Administration offices at Hongkong. A first call of $1 will be collected on every share at the Dutch Bank. When more subscriptions are obtained, an office will be opened for the purpose, and when subscriptions are fully collected, the capital will be deposited at the Hongkong and Shanghai Banking Corporation, Hongkong. Subscriptions for shares will be only collected up to the sum equal to £750,000. Shareholders are to enjoy the privilege as stipulated in the agreement entered upon by the Chinese Government with the British syndicate at Peking.

CHINESE EAGER TO BUILD RAILWAYS—The people of the two provinces of Kwangsi and Yunnan appear to be most eager to build their own railways and work their own mines in their provinces. The Kwangsi community residing at Canton are now busily engaged in arranging a meeting on the 17th instant, at the Kwangsi Assembly Hall, to discuss matters. The promoter, Ho Kin Fu, has drawn up a prospectus giving in detail all the important points concerning the railway and mining of those provinces. Recently, a letter was received from Yunnan stating that the people are in need of help in the way of capital for the construction of their railway and working the mines of the province. The letter earnestly asked the Canton people to assist them and to inform and request Cantonese abroad to subscribe capital so as to help them to carry out their proposals. The people of these two provinces have for a long time past been in fear lest the interests of railway and mining of these provinces should fall into the hands of foreigners.

EGYPTIAN ENGINEERING CONTRACTS.—The January number of the Journal of the British Chamber of Commerce of Egypt contains a table showing that during the last three years more than half of the contracts made by the Departments of Finance and of Railways were secured by British firms. The contracts were considerable, and were chiefly for locomotives, goods-wagons, rails, signal apparatus, etc. Locomotives entire and parts thereof were also supplied by Germany. Belgium tendered successfully for wagons, bridge and roofing materials, screws, and parts of locomotives. Small machines and oil were the principal contracts obtained by French firms. The figures given for the years 1903, 1904, and 1905, respectively, were as follows: United Kingdom, $1,673,125, $2,472,300, and $2,250,000; Belgium, $562,045, $824,575, and $1,076,500; France, $5,580, $240,000, and $100,000; Germany, $166,425, $148,555, and $432,000; other countries, $433,260, $569,745, and $399,935, making a total of $2,834,855 for 1903 and of $4,015,175 and $4,158,435 for 1904 and 1905, respectively.

PUBLIC AND PORT WORKS, DOCKS, WHARVES, ETC.

KAWASAKI DOCK COMPANY.—The Kawasaki Dock Yard Company of Japan has increased its capital from $3,000,000 to $5,000,000, to engage also in the construction of locomotives, railway carriages, cast steel work, firearms, steel and dynamos. The capital is to be further increased to $10,000,000,

KALLANG RESERVOIR BIDS.—At a special meeting of the municipal commission, March 23, the president mentioned that six tenders had been received for the construction of the new Kallang reservoir, ranging from $780,387 to $1,484,629. That of the Westminster Construction Company, at $907,641 was unanimously accepted.—*Singapore Free Press*.

NEW NAVAL DOCK AT KURE.—The Japanese Naval authorities have decided to construct a big dock at Kure Naval port. The dock is to be of special design, various contrivances being brought into requisition to introduce water into the dock after the completion of vessels built therein. The fact that about half a million yen was required for the launch of the battleship *Satsuma* has, it is reported, induced the authorities to design the new dock.

CANTON RIVER BRIDGE.—Wm. Danby, the engineer for the construction of the iron bridge across the Canton River, has prepared another plan for this. The two Folly Rocks will be utilized as the foundation of the bridge, and the middle part of the bridge will be made movable, so that it can be raised when steamers are passing. Since the opening of the register of the Canton River Iron Bridge Company, the demand for shares has been very brisk, and the proposed capital of the company is expected to be fully subscribed in a very short time.

HONGKONG AND KOWLOON WHARF AND GODOWN CO.—The report of the Hongkong and Kowloon Wharf and Godown Company, Ltd., for the year ending December 31, 1906, shows that the profit on working amounted to $407,693.17, as compared with $390,753.10 in 1905. It is proposed to pay a final dividend of five per cent, transfer $135,000 and $10,000 to depreciation and repairs, and insurance accounts, respectively, and carry forward $3,047.91. The total loss caused by the typhoon is put down at $322,000 and further expenditure, the immediate result of the typhoon, is estimated at $247,000.

IMPROVEMENTS AT VLADIVOSTOK.—Mr. Roger S. Green, the U. S. Consul at Vladivostok, writes Washington that the municipality has determined to undertake the construction of the electric street railway and power plant and an engineer is engaged upon plans and estimates. The present intention seems to be not to give the contract for the whole to one firm, but to buy the necessary material from a number of different parties. A contract for a municipal telephone system for Vladivostok has been awarded to the Russian branch of a German firm. The annual subscription for a single instrument is to be $38.62 gold.

FAR EASTERN ENGINEERING, CONSTRUCTION, COMMERCIAL AND FINANCIAL NEWS

ELECTRIC RAILWAYS, LIGHTING, POWER, ETC.

YOKOHAMA ELECTRIC LIGHT CO.—The Yokohama and Kanagawa Electric Light Companies have amalgamated under the name of the Yokohama Electric Light Co.

CAWNPORE ELECTRIC STREET RAILWAY.—The Indian Electric Supply and Traction Co. opened the new system in Cawnpore to traffic last month. The system was inaugurated by giving the public the privilege of riding free for two days.

KIRIN ELECTRIC LIGHT PLANT.—A charter for an electric light company with a capital of Tls. 200,000 has been secured by a German merchant of Kirin. It is the purpose of the company to supply the city of Kirin with light and power.

ELECTRIC LIGHT FOR ESSENDON.—The municipal council of Essendon, a northern suburb of Melbourne, has accepted the offer of the North Melbourne Electric Tramways and Light Co. to install 450 32 candle power lamps at £2 10s each per annum.

AKASHI-MIKI ELECTRIC TRAMWAY.—A syndicate known as the Denki Tetsudo Kabushiki Kaisha, capitalized at Yen 500,000, has applied for a franchise to construct and operate an electric tramway between Akashi and Miki in the Kobe prefecture.

NEW ZEALAND TO HARNESS WATER POWER.—The New Zealand government is considering a scheme whereby it proposes to utilize Huka Falls and supply the Auckland District with 76,000 horse power with which to develop electricity for light and power.

JAPANESE ELECTRIC RAILWAYS.—Among the newly organized electric companies in Japan are the Hansei Electric Railway Company which is to build a new 5-mile line at Osaka at a cost of $1,250,000 and the Kobe-Takarazuka Electric Railway Company, capital $1,250,000.

TAMAGAWA ELECTRIC RAILWAY.—The Tamagawa Electric Railway was opened for traffic April 7. This line connects the cities of Dogenzak and Tamagawa by way of Sangenjaya a distance of over five miles. The line is divided into four sections and the fare fixed at four sen per section.

UNDERGROUND RAILWAYS IN JAPAN.—A company capitalized at Yen 15,000,000 has been organized at Tokio for the purpose of putting in twelve miles of underground track the system to be operated by electricity. In this connection similar projects have been reported from other cities of Japan.

PROPOSED ELECTRIC TRAMS FOR PEKING.—Taotai Hwang Kai-wen, Director of the Peking Telegraph and Telephone offices, has sent in a petition to the Board of Posts and Communications, and of Agriculture, Works, and Commerce requesting permission to build an electric tramway after the same methods as the Tientsin Trams, with Chinese money.

JAPAN GOVERNMENT TO TRY ELECTRIC POWER ON RAILROADS.—It is the purpose of the Tokio government to use electric power on some of the government railroads and a test will be made by introducing it on the roads Kodzo and Yokohama, Yokohama and Shimbashi, and Shimbashi and Uyeno, forming a semi-circle about Tokio. If the trial proves satisfactory the use of electricity will be extended.

ELECTRIC POWER TO DISPLACE STEAM.—It is reported that the work of making necessary additional arrangements on the present railway between Yokohama and Kodzu for the purpose of running electric cars in addition to steam trains will be commenced in August or September this year. It is reported that one new line will be laid on the above section. Electric car traffic will begin in March or April next year.—*Japan Advertiser.*

UNDERGROUND WIRING IN WESTERN AUSTRALIA.—The postal authorities of the city of Perth, Western Australia, have let the contract for 3300 conduits with six ducts each and 1380 conduits with four ducts each to be installed from two to three feet underground and encased in a bed of concrete. This is the first contract let and tenders for another supply have been invited. These conduits will place all the telephone wires underground.

NEWCASTLE (N. S. W.) TRAMWAYS.—About 30 miles of tramway construction will feature the public utility improvements of Newcastle (N. S. W.) this year. The contract for the construction of an extension of the main system of the city to the race course has been awarded and work on the twenty mile line connecting East and West Maitland has been commenced. In addition to these contracts the Works Committee are considering the extension of the Newcastle system to West Wallsend, a distance of about six miles.

ELECTRIC POWER FOR ADELAIDE TRAMWAYS.—The Government of South Australia took over the horse tramways of Adelaide in February and later turned them over to the Municipal Tramways Trust, a corporation composed of representatives of the state and of the various municipal authorities concerned. The price paid by the State was £280,000, an amount less than the original cost of the lines involved. It is the purpose of the State to substitute electricity for horse power at an early date and reorganize the entire system.

MADRAS ELECTRIC SUPPLY CO.—In connection with the plant which Messrs. Crompton and Co. are erecting for the Madras Electric Supply Corporation Ltd., it is stated that the general supply will be available for lighting and punkah fans and motors and will be on the low pressure direct current three-wire system, the consumers being supplied at 225 volts or 450 volts. To meet the demand for current in bulk for mills, factories and large consumers in or near the town, three-phase current will be generated at 5,000 volts, and delivered to consumers at that pressure and converted by means of transformers to suit their special requirements. A substation will be installed which will be from the high pressure alternating plant at 5,000 volts, the current being converted into low pressure continuous current and distributed from the sub-station at 225 or 450 volts. This sub-station is necessary from the fact that the supply area is approximately 26½ square miles. Further sub-stations will be ereced as required by the demand upon the supply. The Main Generating Station is being erected on a portion of the site of the old Municipal Sewage Farm now disused—the position being well situated as far as the supply of water and coal is concerned, a very important point. The direct current plant to be installed will consist of two 250 and three 500 kilowatt continnous current steam dynamos. This is equal to about 100,000 lamps or their equivalent, connected to the mains. The high pressure alternating current plant for the bulk supply will consist of two 250 and two 500 kilowatt three-phase high tension steam alternators. The steam for driving the plant will be derived from five water tube boilers with electrically-driven chain grate stokers. Each engine will have its own electrically-driven surface condensing plant and four electrically driven boiler feed pumps will be installed. The Generating Station will be of the most modern design and complete with coal conveying plant, two 20-ton travellers and water storage and purifying plant. The total amount of cable to be laid, including distributors and feeders, high and low tension, is approximately 54 miles.—*Eastern Engineer.*

RAILWAYS AND RAILWAY SUPPLIES

SOUTH MANCHURIAN RAILWAY CO.—Debentures to the amount of £80,000 will shortly be placed on the market in New York.

KAIFENG-CHENGCHOU RAILWAY.—Traffic on the Kaifeng-Chengchou section of the Honan Railway was inaugurated April 16.

SOUTHERN MAHRATTA RAILWAY.—The Miraj-Sangli branch of the Southern Mahratta Railway in India was opened for traffic April first.

KAIFENG-FU-LOKYANG RAILWAY.—The Chinese foreign office is arranging for a Belgian loan to build a railroad from Kaifeng-fu to Lokyang.

KIRIN-CHANGCHIN RAILWAY.—A lot has been selected by the management of the road about a mile north-east of the town of Changchun as a site for a railroad station.

KING-CHANG RAILWAY.—An effort is being made at Peking to float a loan in Europe for $10,000,000 to be used in constructing the King-Chang Railway and to build an arsenal.

AUSTRALIAN RAILROAD SLEEPERS:—An order has been placed in Australia by the North Western Railway of India for the delivery of 400,000 sleepers and 9,000 bridge timbers.

NINGPO-HANGCHOW RAILWAY.—French capitalists have made application to the governor of Chekang for a concession to build and operate a railroad from Ningpo to Hangchow.

TAITSIHAR-AIGUN RAILWAY.—The Tartar General of Heilungkiang has dispatched representatives to Harbin to purchase sleepers for the new road the survey of which has been concluded.

KIRIN-CHANGCHUN RAILWAY.—The military governor of Kirin has refused the offer of the Japanese and Russian Consuls to supply the capital necessary to construct the Kirin-Changchun Railway.

SHANTUNG RAILWAY.—The governor of Shantung is semi-officially reported to have granted a concession to a German syndicate to construct a railway from Yihsien to the Tienchuang river.

KUEICHUA-KALGAN RAILWAY.—With three million taels subscribed by the rich secretary of the railroad board, the Kueichua-Kalgan Railway management has decided to proceed with the construction.

AMUR RAILROAD BRIDGE.—The site of the railroad bridge over the Amur River has been decided upon and construction begun. The contractors propose completing this important construction by the end of the year.

BURMA RAILWAY EXTENSION.—The lieutenant governor of Burma announces that a railway will soon be built from Kawakareik to Myawaddi on the Siamese border. The survey of the line has already been commenced.

MANCHURIAN RAILWAY TO HAVE DOUBLE TRACK.—The survey of the Southern Railway for the purpose of doubling the track was commenced March 20. I was expected that the laying of steel would begin abou May first.

SHWEBO-YE-U RAILWAY.—The Burma Railways Company has secured permission from the government of Burma to complete the survey of a proposed line to extend from Shwebo on the Mu Valley Railway to Ye-U, a distance of 22 miles.

KIRIN-CHANGCHUNG RAILWAY.—The sum of Tls. 4,000,000 has been subscribed by the Taotai Sung Chun-so for the construction of the proposed railroad between these two points. It is said that half of this sum came from Russian sources.

KIACHOW-CHINANFU RAILWAY.—The governor of Shantung has granted a franchise to the Kiachow-Chinan-fu Railway to construct a branch from Yih-hsieno to Tien-Chwang-ho. The prospectus and estimates have been submitted for approval.

YI-HSIEN AND GRAND CANAL RAILWAY.—The Peking government has granted the salt taotai, Chang Lien-fu, a concession for a railroad of normal gauge to connect Yi-hsien with the Grand Canal. The contracts for the rolling stock were let at Tsinanfu, March 30.

HANKAKU RAILROAD CO.—The attempt of the directors of this company to increase its stock while the share market was booming failed, and the resolution authorising this step was rescinded. The shareholders refused to subscribe for the shares allotted to them.

YUNNAN-TIBET RAILWAY.—The Grand Council at Peking has directed that the construction of the Yunnan-Tibet railway must be pushed at once and that no foreign capital must under any circumstances be utilized nor must the contract be let to any foreign syndicate.

PEKING-KALGAN RAILWAY.—The Hongkong and Shanghai Bank has agreed to forward profits of the Peking-Shanghai-Kwan Railway for the use on the Peking-Kalgan Railway Works, but the Board of Communications is strongly opposed to the arrangement.

MANCHURIAN RAILWAY AGREEMENT.—An agreement signed April 14, at Peking, stipulates for the joint laying of the Kirin-Changchun Railway; for the purchase by China of the Hsinmintun-Mukden Railway; and for the investment of Japanese capital in that railway East of the Liaoho.

PROPOSED MANDALAY TRAMWAY.—A company has been formed to construct and operate a steam tramway between Obo and Zegyo in the town of Mandalay, Burma. The promoters agree to pay the municipal authorities an annual track rent ranging from Rs. 250 to Rs. 1,000 a mile.

CHEFOO-PEKING RAILWAY.—The merchants and property owners of Chefoo are advocating a railroad from that port to the Chinese capital. In this Tientsin sees the probable injury of her interests and opposes the project. The matter is to be taken up with the authorities at Peking.

MANILA RAILWAY.—The traffic receipts of the Manila Railway for the week ending March 16 were $54,338 (including extensions, 207 miles open) against $41,627 (main line only, 132 miles open) for the corresponding week of 1906, making an aggregate of $496,810 against $379,222 for last year.

MANILA RAILWAY.—The traffic receipts of the Manila Railway for the week ending March 23rd were $47,979 (including extensions, 207 miles open) against $37,197 (main line only, 172 miles open) for corresponding week last year, making an aggregate of $340,070, against $264,154 for last year.

THE SANDAKAN-MARUDA BAY RAILWAY.—The survey of this proposed line has now reached the east side of Sandakan. The route proposed was by Deep Creek and comes out west of Sandakan but this has been abandoned by the surveyors on account of the hilly character of the ground there.

CANTON-HANKOW RAILWAY.—The management of the Canton-Hankow Railway ordered 54 freight cars from Japan at a cost of $216,700, but discovered later that the price quoted by the Japanese did not include the axles or wheels. As a result the order has been reduced to meet the appropriation.

BURMA RAILWAYS.—Capt. Hearn, R. E., Deputy Consulting Engineer for the Burma Railways, left Rangoon March 20 to inspect the Myawaddi Railway survey and the Pegu-Moulmein extension. Mr. Mills, Chief Consulting Engineer for Construction, is going to meet Capt. Hearn.—*Rangoon Times.*

MUKDEN-HSINMINGTUN RAILWAY.—Viceroy Yuan Shih-kai has memorialized the Throne that the profit of the Chinese Railways within and without the Great Wall should be appropriated to cover the expenses of the proposed railway between Mukden and Hsinmintun The proposal has received imperial sanction.

DOUBLE TRACK ON TOKAIDO RAILWAY.—The work of doubling the railway on Biwashima-Kiyosu and Yaizu-Shimada sections of the Tokaido line has been finished and the lines open to traffic. Okazaki-Ofu and Ofu-Atsuta sections of the same line are also expected to be completed before long.

EAST INDIAN RAILWAY.—The construction of the Khurja-Hapur branch of the East Indian Railway is almost complete and in a short time it will be thrown open. This branch connects the Moradabad-Ghazibad section of the Oudh and Rohilkund Railway at Hapur with the main line of the East India at Khurja.

SZECHUEN-TIBET AND YUNNAN-SZECHUEN RAILWAYS.—The Chinese landowners of the provinces of Szechuen and Yunnan intend to forestall British enterprise by building the Szechuen-Tibet Railway with Chinese capital. The native capitalists are also interested in a projected line between Chengtu and Western Yunnan.

CHIHLI-SHANTUNG RAILWAYS.—The viceroy of Chihli has been in communication with the viceroy of Shantung on the subject of constructing a railroad about 400 li to connect Shanteh in Chihli with Chinanfu in Shantung. It is reported that an agreement has been reached and that the survey of the proposed line will begin at once.

TIENTSIN-CHINKIANG CONCESSION.—There is a prospect that the application for a franchise by an Anglo-German Co. to construct a railway between Tientsin and Chingkiang will be favorably considered by the Peking government. A memorial signed by the leading officials of Chili, Shantun and Kiangsu has been submitted to the throne.

MANILA RAILWAY.—The traffic receipts of the Manila Railway for the week ending March 30th. were $19,112 (including extensions, 207 miles open), against $10,854 (main line only, 132 miles open) for the corresponding week of 1906; making an aggregate of $599,490 against $451,376 for last year.—*London and China Express.*

CHINESE TRUNK LINES.—The departments of Communications and Posts have recommended to the Empress Dowager that extensive trunk lines of railroads be built throughout the Chinese Empire. The Empress Dowager directed that a complete railway map of the empire be submitted with the proposed trunk lines indicated thereon.

YIHSIEN-TIENCHUANG RAILWAY.—The Chinese-German Coal Mining Company is busy surveying a line 90 li in length connecting Yihsien and Tienchunag in Shantung to be built at an estimated cost of 900,000 Tls. An order for material has been placed with a German firm. The road will be used exclusively for the transportation of coal.

TRAMWAY EXTENSION TO BARANAGORE.—At a meeting of the Cossipore-Chitpur Municipal Commissioners held the other day the necessary agreement *re* tramway extension to Baranagore between the Calcutta Tramway Co., Ltd., and the Commissioners was approved and forwarded to Government for final orders.—*The Bengalee, March 23, Calcutta.*

BHAMO-TENNE RAILWAY.—To tap the trade of Tibet and divert it from the Tonkin Railway is the purpose of a British syndicate that has invaded Yunnan. This line will be in a position to supply the country in and about Tibet and carry all the cotton grown in the Upper Yunnan to Bhamo to market. Bhamo is situated on the boundary of British Burma.

KOWLOON-CANTON RAILWAY LOAN.—A dispatch from London states that subscriptions are being invited for a Chinese Imperial Railway loan for the construction of the Chinese section of the Kowloon-Canton line.

The amount of the loan required is £1,500,000 at 5 per cent issuable at par and redeemable in 30 years.

THE YUNNAN RAILWAY.—The Yunnan Railway construction is progressing slowly owing the scarcity of the labor, through the inability of the natives of the province of Szechuan, who make up the greater part of the labor, to stand the rigors of the northern climate. However, the railroad authorities expect to reach the Chinese treaty port of Mongtse about the middle of January.

SHANGHAI-NANKING RAILWAY. — New passenger coaches have been put on the Shanghai-Nanking Railway and the fare has been reduced one-half. The management has introduced the American check system in the baggage department, which has proved a welcome innovation. Four pieces of baggage are allowed each passenger and porters are supplied at each station who atend to the transfer at two cents per passenger.

MANCHURIAN RAILWAY JUNCTION.—The *Mainichi Dempo* states that the junction of the Russian and Japanese lines in northern Manchuria is to be at Palipao, This place lies on the Chuangchun-Kilin high road. which, setting out from Kilin, runs nearly due West to Changchun, thence to Wutipao, and thence to the railway, which it crosses and enters Palipao. The last-named place lies 4 miles north of Menkiatun and about 2 miles south of Kwanchengtsz.

AMERICAN LOCOMOTIVES SOLD ABROAD.—The American Locomotive Co. has received the following orders for locomotives for delivery in foreign countries: Two eight-wheel passenger locomotives for the Canton-Hankow Railway, China; three prairie type tank locomotives for the Yueh Han Railway, China; five prairie type tank locomotives for the Yokohama Railway of Japan; two four-wheel type saddle tank locomotives, government railway of Guatemala, and three mallet type locomotives, Central Railway of Brazil.

INDIAN RAILWAYS.—The following additions were made to the railway system of the United Provinces during the year 1905-06:—*East Indian Railway:*—The Shikohabad Furrukhabad branch, 36¼ miles, and the extension of the Etmadpur chord from Satauli to Etmadpur one mile; *Agra Delhi Chord Railway:*—The Sanket branch from Kosi to Sanket, 6 miles; *Bengal and North-Western Railway:*—The Barhni Tulsipur section, 23 miles; *Rohilkhand and Kumaon Railway:*—The Bareilly Soron section, 56 miles.—*The Capital.*

BAIKAL RING RAILWAY.—The railroad built by the Russian government around the southern end of Lake Baikal in Eastern Siberia is reported in very bad repair and it will necessitate an outlay of approximately £1,150,000 to put that section in proper shape again. This road is about 162 miles in length and cost the Russians the sum of £4,250,000. When the war broke out the construction of part of it was rushed and the consequence was that it was very poorly built and will have to be gone over again. The cement and other materials proved very inferior.

PATENT VOUCHER BLOCK INSTRUMENT ADOPTED.—The *Calcutta Railways* announces that the Indian railways generally have adopted the Neale Patent Voucher Block Instrument. In fact the Railway board has issued a circular to all railways in India calling attention to the new device with a view to giving it a trial. It has been already adopted by the East Indian Railway, Great Indian Peninsula Railway, Bengal-Nagpur Railway, Burma Railways, Oudh and Rohilkhand Railway, and we understand the Eastern Bengal State Railway has decided in its favor.

SOUTHERN PUNJAB RAILWAY.—The total approximate earnings of the Southern Punjab Railway for week ending 2nd March, 1907, were Rs. 75,220, against the audited figures of Rs. 84,035 for the corresponding week of the previous year. Those of the Ludhiana Extension were Rs. 11,309, against Rs. 7,989. The total approximate earnings of the Southern Punjab Railway for week ending 23rd February, 1907, were Rs. 82,487, against the audited figures of Rs. 1,02,029 for the corresponding week of the previous year. Those of the Ludhiana Extension were Rs. 12,343, against Rs. 12,222.—*Railways.*

KIRIN-HEILUNGKIANG RAILWAY.—A protest has been filed by the Russians against the proposed construction of a railroad from Kirin to the north of Heilungkiang and connecting the latter place with Sanhsing, a project that has been set on foot by the Chinese government. The Russians claim that they have a right by a former agreement with China to participate equally with the Chinese government in the construction and operation of railways in that part of Chinese territory and further claim that with China in complete control of the proposed road the interests of the Eastern Manchurian Railway would be seriously affected.

CEYLON RAILROADS.—The following resolution was moved at the Annual Meeting of the Ceylon Chamber of Commerce, held at Colombo on the 26th ultimo:—That this Chamber views with great apprehension and regret the long and unwarrantable delays that are taking place on the part of the Right Hon'ble the Secretary of State for the Colonies, in connection with the schemes relating to the Ratnapura Railway, the Passara Extension, and the Manaar Branch Railway, for the construction of all of which, immediate sanction is urgently necessary in the interests of the Colony. and they desire that the strongest possible remonstrance be made to the Colonial Office on the subject."—*Railways.*

MANCHURIA RAILWAY DEVELOPMENT.—The correspondent of the *North China News* writes under date of April 17.—The purchase price of the Hsinmintun-Mukden railway is Yen 1,660,000.

Half the capital of the Hsinmintun-Mukden and Changchun-Kirin railways will be borrowed from the South Manchuria Railway Company. The term of the loan for the Hsinmintun railway will be eighteen years and of the Chang-chun Railway twenty years, and the amounts will be unredeemable until the full expiration of those terms. The chief engineers and accountants are to be Japanese, who will have full responsibility for the lines.

INDIAN RAILWAY EXTENSION.—It is officially anticipated that during the year 1907-08 a total of 832.02 miles of new railway will be opened for public traffic in India. Of the total mileage 171.73 miles will be on the 5′ 6″ gauge; 473.76 miles on the 3′ 3½″ gauge; and 186.53 miles on special (2′ 6″ and 2′ 0″) gauges. The Railway System and Railways contributing to the total mileage in varying proportions are the following:—Eastern Bengal, Nagda-Muttra, North Western, Bengal-Nagpur, East India, Great Indian Peninsula, Assam Bengal, Burma Railways, Nilgiri Railway; Bezwada-Masulipatam Railway, Rohilkhand and Kumaon, Gackwars Mehsana, Jaipur Railway, Purulia-Ranchi Railway, Shahdara (Delhi), Saharanpur Light-Railway, Dholpur-Bari Railway.—*Capital.*

THE KOWLOON-CANTON RAILWAY.—The work on this railway is being pressed forward apace, and much real work has already been done. The real piece of work which is now to be attacked in earnest is the boring of the tunnel through the range of hills that rises behind the Kowloon Hinterland. This has been already begun, but the nature of the rock met with has proved that the task will not be an easy one. Big granite boulders are being met with, and these lie embedded in masses of decayed granite, so that a good deal of timbering has to be done to keep everything safe whilst blasting is going on. On the other hand, gangs of coolies are at work and these have already built much of the line on the south side of the hills, and they are also at work on the north side, so that there are really three parts of the line being worked at one and the same time.—*N. C. Daily News.*

TSITSIHAR-AIGUN RAILWAY.—The Tartar General of Heilungkiang or the Amur province has completed arrangements for the construction of a railway which will connect Tsitsihar, the capital, with the city of Aigun in the same province. Two million taels have been subscribed by the merchants and landowners of the Amur province and there is every indication that the road will be built in its entirety by local capital. In fact Tartar General Cheng-Teh-ch'uan has filed a protest with the authorities at Peking against permitting the Russians to have any hand in the construction or the direction of the road. At the present time all the sleepers needed for the proposed line are being cut from the great forest of the province and a large contract for rails and other materials has been placed with the Hanyang Steel and Iron Works of Hankow. The surveyors have reached a point called Yachau, about twenty miles from the capital. Construction work will be commenced at once.

RAILWAY BANK FOR SZECHUAN.—H. E. Hsi Liang, retiring Viceroy of Sze-chuan, has memorialised the Throne respecting the establishment of a railway Bank at Chengtu to have charge of the financial affairs in connection with the building of the proposed Chuan Han or Szechuan-Hankow trunk line, with pure Chinese funds.

According to the memorial, the railway company has already subscribed about Tls. 7,000,000 from the native gentry, merchants and others in Sze-chuan province.

As this money is quite sufficient for the construction of the first section from Chengtu to the treaty port of Chungking, the memorialist anticipates that the constructional work may be commenced within the course of May, of the current year, without further delay so that the rich and vast province of Sze-chuan may be connected with the other Yangtsze provinces by railroad, for facilitating communications in the course of the next few years.

RAILWAY EQUIPMENT.—Foreign trade opportunity No. 750 stated that, according to official advices received by the Department of State, the South Manchuria Railway Company, which is under the direction of the Japanese Government, had decided to adopt the American system, and to place large orders for materials in the United States as an expression of appreciation of America's friendly attitude toward Japan. The Department of State has now received a dispatch on this subject from Ambassador Wright, of Tokyo, stating that he has been informed that the South Manchuria Railway Company will require one hundred and fifty (150) locomotives, besides rolling stock and other supplies, which in all will aggregate in the neighborhood of ten million yen (about $5,000,000) Two firms in Japan that represent American locomotive works and manufacturers of railway supplies have been furnished with specifications for the purpose of presenting bids. The addresses of these will be supplied to inquirers by the Bureau of Manufactures.

PUBLIC AND PORT WORKS, WHARVES, ETC.

UNO HARBOR WORKS.—The inauguration ceremony of the Uno Harbor works, Japan, took place last month. The work will extend over three years and the estimated cost is Yen 338,757.

CALCUTTA CEMENT CONTRACT.—Messrs. Balmer, Lawrie & Co. have been awarded the contract to supply 5,000 barrels of cement by the Calcutta Port Works. The price is Rs. 33,437-8-0. The Gillingham brand was selected.

BURMA CANALS.—Provision has been made for working expenses on the Shwebo Canal. The expenditure on construction on Burma Canals during 1907-08 will be as follows:—Shwebo Canal Rs. 1,99,000; Mon Canals, Rs. 7,83,000; Yeu Canal, Rs. 18,000.

TOKIO HARBOR WORKS.—The Japanese government is arranging for a foreign loan of twenty million yen in order to carry out the projected harbor works construction at Tokio. It is understood that the loan will be placed through the Industrial Bank at Tokio.

INDIAN IRRIGATION.—The total canal irrigated area of the spring crops of the Punjab to end of February is returned as 4,835,947 acres as against 4,382,386 acres in the corresponding period of 1906. The large increase in area this year is shared mainly by wheat, sugar-cane, gram and winter oilseeds.—*Capital.*

TOWN HALL FOR YOKOHAMA.—The residents of Yokohama are considering the proposal to build a three storied building on the site of the old building which was burned, at a cost of a million yen. It will be indicated as a monument commemorating the fiftieth anniversary of the opening of the port of Yokohama to foreign trade.

YOKOHAMA WATERWORKS EXTENSION.—The municipal authorities of Yokohama are contemplating the enlargement of the present system of reservoirs so as to increase the capacity to take care of a population of one million persons. It is proposed to tunnel a distance of three miles to the upper part of the Doshi River for the new supply.

STRAITS SETTLEMENTS WATERWORKS.—The Straits Settlements *Government Gazette* publishes the text of a bill to enable the municipal commissioners to borrow $4,145,410 for the construction of waterworks to be divided as follows: $6'0,000 for the extension of filters, $3,834,460 for Kalang reservoir and land and $3,660,950 for Selitar works.

NEW WELLINGTON GRAVING DOCK.—*The Australasian Hardware and Machinery* announces that John McLean and Co. have been awarded the contract for the construction of the Wellington graving dock, New Zealand, and work will commence at once. The contract price is £196,261 and the time allowed for the completion of the contract is four years.

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June 1907

Shansi Railway, the railway from Pingtingchou to Tsechou had been surveyed and the line was expected to be ready in four years.

Kirin-Changchun Railway, Peking had stated the loan from the South Manchurian Railway was to be ¥4 million.

Chinese Railways, the Government had decided that all railway concessions granted to merchant syndicates would last for 25 years only.

Hsinmintun-Moukden Railway, the president of the South Manchurian Railway had ordered all railway materials to be handed over to the Chinese to improve relations.

Manchurian Railway Equipment, the South Manchurian Railway Co.'s offices were to be located in Dalny (Tairen). The track was to be broadened to standard gauge and double tracked as far as Mukden (247 miles) and possibly further north.

Yunnan Railways, the French request for a Yunnan to Szechuan concession had been refused because local gentry wished to build it themselves.

Peking-Hankow Railway, receipts for the year amounted to $7,200,000 of which $2,200,000 was for general expenses and $2,300,000 interest on the Belgian loan. Receipts were up 25% on the previous year.

Kwangchentse Railway Station, a site for the station had been selected between Changchun and the Russian railway station.

The South Manchurian Railway Company, the sum required for the various improvements had now reached ¥27,880,000 of which ¥10,510,00 was needed for the reconstruction of Tairen station, offices etc and 17,370,000 needed for 240 locomotives and rolling stock.

July 1907

Chinese Railway Schemes A North China Daily News report states that are "throwing themselves with enhusiasm into building railways"

Railway and Mining Development in China, an editorial summarizing railway and mining developments in China with future prospects.

Railway Development in Manchuria, Japan had placed an order for $12,000,000 worth of equipment from USA.

Peking-Hankow Railway Extension, Shantung gentry were considering an extension from Tseu-tao to Chinanfu.

Szechuan-Hankow Railway, the British Syndicate were negotiating with Hongkong & Shanghai Bank for a loan of 15,000,000 Taels.

Tientsin-Chingkiang Railway, Yuan Shih-kai had proposed raising a Anglo-German loan for constructing this railway.

Indo-Chinese Railways, the Viceroy of Yunnan had advised the Government that the French had raised 60 million Francs for construction from Mengtze to Lao-kai. 17 Italian engineers were engaged on surveying the route.

Peking-Hankow Railway, the Chinese Government was to purchase the railway by way of a loan from the Anglo-Chinese Syndicate.

Railway for Kuangsi, work was expected to start on building this line.

Chuan-Han Railway, the Viceroy had protested against the use of French capital for the Szechuan-Hankow trunk railway. It was also now proposed to build the line from Chengtu to Honan, connecting with the Kaifeng-Loyang branch of the Peking-Hankow line instead of direct from Hankow direct to Chengtu as originally suggested. It was also desired to build it with Chinese money, not foreign capital.

Manchuria Railway Construction, the Viceroy of Kirin intended to build a line from Changchun to Kirin.The rails and sleepers had been ordered. A small part of the rolling stock had been ordered through a German agent. There was also now a Chinese plan to build a 90 mile line from Kaiyuan to Hailungfu.
Honam Railway Loan, the Chinese Government was to borrow another 16 million francs.
Szechuan-Hankow Railway, the company was now inclined to alter the original route.
Kowloon-Canton Railway, heavy rains had wrought havoc on construction sites in Kowloon.
Swatow-Chaochow Railway, railway just completed.
Kowloon-Canton Railway, the tunnelling in Shatin was now very slow because of solid granite. It was being worked by Italians.
Tientsin-Chinkiang Railway, the construction was to be divided into three sections with each province meeting the respective costs. The original concession had been granted to Anglo-German syndicate with the Germans responsible for the northern half and the British the south.
Sanning Railway, (Xinning Railway) the roadbed had been condemned by an engineer who inspected it. A heavy engine passing over it would cause it to sink.

August 1907
Mukden-Hsinmingtun Railway, gauge widening work had commenced.
Formosan Railway, there was a proposal to build a light railway from Kagi to Fanshuliao.
Manchurian Railway Deal, France and England were reported as wishing to take over the South Manchurian Railway because the Japanese were having difficulties raising funds.
Cuts to Freight Rates, freight rates on the Hsinmingtun-Mukden Railway were reduced by 30%.
Fatshan-Kongmoon Railway, a third meeting had been held at Fatshan about building this line.
New Railway in Manchuria, military governors were discussing building a line between Peituanlintsu and Sanhsing.
Shensi Railways, capital for these railways were to be raised locally.
Kuangtung-Macao Railway, a demand had been made for the cancellation of the concession.
British Railway Concession in China, final contracts for the Shanghai-Nanking and Canton-Kowloon railways had been concluded according to British Government officials.
Material for Manchurian Railway, the greater part of the construction materials were now being shipped from USA.
Chinese Military Railway Proposed, the Viceroy of the Liang Hu had proposed a light military railway from Hupeh to Kiangpeh.
Kuanchentsu Railway Station, a Russo-Japanese agreement had been signed about building this station. The Japan were to establish a new Changchun station between the city and existing station and the track divided between the South Manchurian Railway and Chinese Eastern Railway.
Railway Schemes for Shantung, the contract had been signed for the line from Yihsien coalmines and Taierhchwang on the Grand Canal. The capital was Chinese but two German firms had secured construction contracts.
Canton-Hankow Railway, a number of resolutions had been passed by the company.

September 1907

Tonkin-Yunnan Railway, A report that the French government had been critical about the treatment of labour during the construction of this railway.

Kuansi Railway, a survey had been ordered commencing in Wuchow.

Shanhaikwan-Newchwang Extension, the Japanese had protested against the extension of the line beyond Hsinmintung.

Shantung Railway Extension, German had requested Chinese permission to extend the line into the Chinese interior by way of Honan.

Kwansi Railway Co, a company had been organized.

Weihsien-Chefoo Railway, the Peking Government had authorized this line via Huanghsien.

Puntung Railway, the first section of this line had been surveyed and construction would be pushed as rapidly as possible.

Mukden-Antung Railway, the route was to be changed between Fengwengcheng and Mukden on account of difficult terrain and because of double tracking

Damage to Manchurian Railways, heavy floods had damaged many bridges on the line between Tairen and Tashihkiao, Mukden and Antung and on the line north of Shanhaikwan.

Peking-Jehol Railway, the new line to be known as the Ching-Ie-Tieh-Lu would be built with Chinese funds from Imperial Railways of North China as soon as the Peking-Kalgan line was completed.

Kiukiang-Nanchang Railway, construction was progressing very slowly due to lack of funds.

Manchurian Development A consular report about railway developments in freight trafic between Mukden, Newchwang and Dalny (Dairen) .

October 1907

Chinkiang Section of Shanghai-Nanking Railway Open, a short article reporting the Chinkiang section as having opened to traffic on 15 October, suggesting progress had been quicker than anticipated. The whole line would be completed in about another two years. The section just completed had been difficult with many cuts and over 1000 feet of tunnelling. The railway was being built by the British and Chinese Corp. with Jardine Matheson in charge of construction and operation with Hongkong & Shanghai Bank providing finance.

Hangchow Railway, The Kiangkan-Hushueh Railway was formally opened to traffic on September 22.

Kirin-Changchun Railway, the survey had been completed.

Yunnan Railway Troubles the Chinese had decided the railways in Yunnan would be built and operated exclusively by the Chinese. The French had protested.

Manchurian Railway as Stevedore, new regulations on 1st October provided for cargo unloaded at Tairen to be handled by the South Manchurian Railway Co.

Manchurian Railways, a joint timetable and tariff for SMR and CER services put in effect 10 October.

Redemption of Peking-Hankow Railway, the Mimistry of Posts & Communications was working on a scheme to redeem the railway.

Nationalization of Chinese Railways, the Government had decided to place all railways under their control and it was making enquiries in other countries as to the best method to accomplish this.

Foundry for Chinese Railways, the Viceroy was planning to establish a foundry at Hankow to benefit various railways.

Peking Railway School, the Government planned a railway training school at Peking.
Tientsin-Chinkiang Railway, the British Syndicate that had agreed to lend the money for this railway expected to receive 4 million Taels annually.
Chinese Railway Concession, Shensi and Kansuh gentry had requested a concession from Taiyuanfu to Hsianfu and then on to Lanchoufu. This was in response to a request for a similar Belgian concession.
Chinese Railways Proposed, Kuangsi gentry had obtained permission for railways from Wuchow to Kuei Hsien, Kuei Hsien to Nanning and future extension to Kuangtung.
Fuhkien Railway, 2 locomotives had been ordered, one of them through Mitsui Bussan Kaisha in Amoy. Sleepers and rails had also been ordered.
Shuntehfu- Chinanfu Railway, this railway had been proposed.

November 1907
Far Eastern Railway Construction An editorial discussing railway progress in Asia, notably Japan and China.
Opening of The Wusieh-Chinkinag Section of the Shanghai-Nanking Railway. One page report explaing how this section had been opened to traffic on 15 October. It describes the proceedings of the official opening.1 photograph of the Chinese Commissioners of this line during a visit to the Stephenson Locomotive Works in Darlington England.
Canton-Hankow Railway, an article detailing the proceedings of a shareholders' meeting held 16 October. Seven sections of the main line were currently under construction from Canton to Ying Tak representing about one third of the main line. There had been much suspicion from shareholders about dishonesty and monthly reports were called for from each department. One small photo of a Robert Stephenson Co locomotive supplied to the Shanghai-Nanking Railway.
Kiaochow Railway, the Chinese Minister at Berlin had lodged a protest against the extension of the Kiaochow –Chinan Railway by Germany.
Tongshan Locomotives, in October a new locomotive for the Peking-Kalgan line was delivered to the railway by the Tongshan Locomotive Works.
Doubling South Manchurian Railway, the doubling of the tracks was expected to be completed by the new year.
Canton-Hankow Railway Redemption, the annual instalment for the redemption of the line from the American Syndicate, amounting to $500,000 had been paid.
Canton-Macao Railway, the agreement between China and Portugal had been cancelled.
Canton-Kowloon Railway, the survey of the Chinese section had been completed.
Canton-Kowloon Railway Tunnels, the longest tunnel through the Feiloi Pass was 300 feet. A number of Canadians had been engaged to take charge of construction.
Peking-Hankow Redemption, the Belgian Syndicate had declared the redemption price to be £4.4. million.
Szechuan Railways, Peking had ordered a number of engineers to be engaged to survey the line and to build the line as soon as possible.
Junction of Honan Railway and Peking-Hankow Railway, money had been collected for connecting the two lines at Hoshanchiao and an engineer engaged.
Canton-Hankow Railway, 3 surveying parties were at work.

Rate War in Manchuria, the Hsinmintun-Mukden Railway had retaliated against the recent cut in rates on the South Manchurian Railway between Mukden and Newchwang.
Soochow, Hangchow, Ningpo Railway, the British Minister had been advised that the provisional loan agreement for this line had become null and void due to local protests.
Chinese Locomotive Factory Proposed, a factory had been proposed for Wuchang to provide the Szechuan-Hankow line with rolling stock.
Kwangtung-Kwangsi Railways, due to a lack of funds the directors had suggested combining with the Yuet-Han Railway, connecting Samshui with Wuchow.
Mukden-Antong Railway, the SMR had decided that the expenditure for this line was not warranted and was now considering a line from Antung and Tashihchao connecting with the Seoul line in Korea.

December 1907
Amoy-Chiang Chow Railway, a short report that a 30 mile-long raiilway was under construction in Fukien Province between Amoy and Chiang Chow. The railway commenced at Sing-su on the smaller island of Kulangsu where the foreigners live. A steam ferry was also proposed connecting Kulangsu with Amoy.
Canton-Hankow Railway The railway company was attemting to change the name of the railway to reflect that the terminus was in Wuchang.
South Manchuria Railway, A report that the terminus at Nikutung (Newchwang) was to be changed to Yingkow.
Szechuan Railway, The Peking Communications Board had agreed for this line to be constructed.
Hunan Railway, A report that the survey had been completed for the section between Kueiyuan and Changsha.
Suchow-Ningpo-Hangchow Railway a report that the agreement to construct this line with British loans would be adhered to, despite local opposition.
Standardizing the South Manchuria Railway a report that the line would be converted to standard gauge as soon as possible.
Kuanchengtse-Kirin-Antung Railway, a report that Japan was incisting on settling "questions" about the control of railways and telegraphs within Manchuria.
San-Ning (Xinning) Railway a report that the first 20 miles of this line put be put into operation by year end

January 1908
Chinese Railways, Mining and Telegraphs, a detailed 6-page report by Sir Alexander Hosie, acting Commercial Attache to the British legation at Peking. Hosie summarises railway developments during the past year. This includes the formation of the SMR and the taking over of ex-Russian lines in Manchuria as well as additional lines built in the region by the Japanese, these being notably the 187 mile Moukden to Antung line and the 36 mile Moukden to Hsinminfu (later sold to Imperial Railways of North China). 3ft. 6in. gauge line was also being relaid as standard gauge and double tracking was being introduced from Tairen to Moukden. The Russian controlled CER was now curtailed to 1,072 miles. Imp. Railways of North China had had another good year although earnings were slightly down. Hosie also reports on construction progress of the Peking-Kalgan line that had already opened as far as Nankou, 33 miles from Peking. Washouts in Honan on the Pekin-Hankow line had caused interruptions during the year and improvements were being made to prevent recurrence. Hosie then describes a journey on

this line, which took 36 hours by ordinary train. There was also a weekly overnight express which did not take much less time because of a desire to travel slowly to avoid accidents, and to “give no opportunity to those in China who denounce the iron horse”. Hosie also mentions the light line of 4 miles length from Kaopaitien (52 miles from Peking on the Ching-Han Railway) to the Imperial tombs, and also another 4 miles of line operated by Imp. Railways of North China connecting Fengtai (13 miles from Peking) with Lukouchiao. Hosie also describes the Cheng-Tai branch line which connected with the Ching-Han Railway at Chentou just south of Chentingfu.This line, of which about half was open, extended westwards for 155 miles to Taiyuenfu.The Tao-Ching line from Taokou to Chinghua is also mentioned. Next mentioned is the Pien-Lo Railway from Pienliangcheng (the old name for Kaifeng, the capital of Honan) to Lo-yang Hsien within which lies the prefectural city of Honanfu. There was a proposed extension of this line to Hsian-fu the capital of Shensi province. Hosie next describes the Tsingtau-Chinan-Poshan Railway in Shantung covering a distance of 270 miles. And gives latest passenger and freight figures. The Shanghai-Soochow-Chinkiang-Nanking Railway features next which was under construction by the British and Chinese Corp. By July 1906 trains were running for about 80 miles between Sanghai and Wusieh and the line had been opened further to Chang Chou since then. In November 1906 work had started on a 12 mile line to connect Hangchow with the foreign settlement, the railway being built and operated by the Chekiang Provincial authorities. There had been no changes with regard to the Anyuan-Pinghsiang-Chuchou line in Kiangsi and Hunan provinces, the length of which had been reported as 64 miles. The Swatow-Chaochoufu line of 24½ miles had opened on November 28 1906 but suffered the disadvantage of having its termini distant from the towns. The line had been built and was being operated by Japanese. There were three trains each day. The Canton-Fatshan-Shamshui line of 30 miles had double track as far as Fatshan and was prospering according Hosie with nearly 3 million passengers carried during 1906. Trains were running every hour from Canton to Fatshan and two hourly to Samshui. The line had suffered rain damage but improvements were being made. There had been no serious accidents but several death and blind people had been struck and killed by trains. There were only two foreigners (Americans) connected with the line. The southern terminus of the Canton-Hankow line was situated about a mile north of the foreign settlement of Shameen. The single track extended for about ten miles and there were occasional construction trains operating. Hosie next mentions the Kungyik-Sunning-Samkapoi railway of 35 miles also under construction in Kwangtung province. Next Hosie reports on French progress with the Tonkin-Yunnan Railway. In May 1906 27 miles had been opened from Hokou on the border and the line was expected to open as far as Mengtzu by April 1908. Hosie brings matter up to date on the Kowloon-Canton Railway although this was not expected to be completed until about 1910. Finally Hosie lists the various new lines proposed and being surveyed. 9 photographs of mainly railway construction scenes, one photo of Shen Tun-Ho, Co-Director of Imperial Chinese Marine and Railway Bureau and one sketch map of the Swatow-ChaoChowfu Railway.

Railway and Mining Development in China Reproduced one page report from "the Mining Journal" .

Swatow-ChaoChowfu Railway, an article describing this railway, the holding company of which had been registered in Hong Kong with Ng Li Hing as director.

Changchun Depot, the station was opened by the Japanese 1st December.

Kuangsi Railway, a subsidy of one million Taels had been authorized by Peking.
Peking-Hankow Railway, a bridge break at Sinyanchou, Honan had disrupted traffic.
Kirin-Changchun Railway, work on the 50 mile line would commence March.
Urga-Kalgan Railway, the survey for this line was to be begin next spring.
New Peking Railway Depot, the foundations for the new depot at Chien-men were under way. The contractors were Adams & Knowles of Tientsin.
Chengting-Techow Line, Peking had authorized a survey for this line.
Chinese Imperial Railways, a dispatch from London reported that Mr. Steel of Caledonian Railway had been appointed Traffic Manager for Chinese Imp. Railways
Kalgan-Kulun Railway, construction work was to commence in the spring.
Honan Railway Construction, natives of the province had advised Peking that local capital would be used for the construction of the great railway through Honan, Shensi and Kansu provinces.
Pakhoi-Nanning Railway, a joint foreign and Chinese syndicate was being organized to construct this railway.
South Manchurian Railway Extension, the Taotai at Yinkow had filed a protest to Peking about the SMR extension to Yinkow.
Luhan Railway Profits, the annual report stated a profit of 1½ million dollars had been made.
Kansuh-Sinkiang Railway, the financing of the construction was under consideration by Peking.
Central Manchurian Surveys, a joint survey of the Kirin-Changchun line was expected to be finished in spring.
Macao-Canton Railway, Canton capitalists were still keen to finance the railway and had asked Peking for confirmation of the cancellation of the agreement with Portugal.
Doubling Manchurian Railway, the entire work between Tairen and Sukiatun was expected by the end of 1908.
South China Railways, the Hunan Railway Co. was negotiating a loan of $3 million from the Yuet-Han Railway and the Viceroy of Canton had received a petition for permission to build a branch line from Kongmun to Fatshan.
China's Railway Mileage, China's total mileage was stated to be 3,740 miles, most controlled by foreigners.
Shangtung Railways, the proposed coal line to Taierhehwang near the Grand Canal had not yet been surveyed, there had been much agitation and prospects for the line were not bright.
Chengting-Taiyuan Branch, Peking had reported there would be a deficit for 1908 in respect of this recently completed line.
German Railway Concession, German capitalists were seeking to build a line from Tsinan to Kaifeng.
Peking-Mentoukou Branch, this 15 mile branch of the Peking-Kalgan line was opened to traffic 21 November. The line would be further extended to Huncho.
Kowloon-Canton Railway, the Hong Kong Public Works department had issued an annual report on progress.

February 1908
Canton Railway, Peking had directed that construction should begin immediately.
Ili-Lanchow Railway, efforts were being made to raise a loan for this railway in Kansu.

The Sunning Railway, the section of line between Sunning and Kungyikfu had opened to the public 4th January.
Mukden-Antunghsien Railway, the SMR loan of ¥2 nmillion for this line had been approved by Peking.
Canton-Hankow Railway, a large Chinese syndicate had offered to finance the line.
Kongtsun-Sunkai Railway, this section of the Canton-Hankow line was complete and ready to open.
Railway to Newchwang, Peking was considering a line from Tangchow to Mokaoying near Newchwang via Shanhaikwan.
Yuen-Han Railway, money had been raised in Hupeh to build a line as far as Changsha and Chuchao.
Southern Manchurian Railway Bridges, steel had arrived from USA for construction of bridges.
New Chinese Railway, Peking had approved plans for a line from Taiyuanfu to Tungkwan and thence to Sianfu and Chiayukwan connecting with the line from Sinkiang to Tibet.
Imperial Chinese Railways, boilers had been ordered for operating machinery engaged on the construction of the Lanchou bridge.
Tientsin-Yangtze Railway Loan, a $25 million loan agreement had been signed with the Anglo-German Syndicate on 13 January. The 675 mile line would take about 4 years to build.
Railway City Near Mukden, the SMR proposed building a new city immediately west of Mukden and had acquired land for this purpose.
Manchurian Railway Supplies, the SMR's order to USA was for 208 locomotives, 80 passenger cars and 2100 trucks. Of this 26 engines and 600 cars and trucks had been delivered.
Canton-Hankow Railway, construction was to be pushed simultaneously in Kuangtung, Hupei and Hunan. The terminus was to be at Wuchang instead of Hankow while the Szechuan-Hankow trunk line would have its terminal at Hanyang, both of which would be connected to the Peking-Hankow line across two steel bridges over the Han River.

March 1908

The Canton-Kowloon Railway, a report discussing the progress and financing of this line and its suggested benefits including the connecton it would ultimately provide with the Canton-Hankow Railway line, if this were eventually completed.
Railways in China, a one page article describing a memorial to the Throne from Tsen Chun-hsuan suggesting China have proper and unified control of its railways. The central system would be composed of the Tientsin-Shanhaikwan and Peking-Hankow lines. There would be four trunks lines and branch lines.
Yunnan-Lokai Railway Agitation a report that there was native agitation for purchase of the line.
Hongkong-Canton railway a report that the Hongkong Legislative Council had approved a sum of $4.25 million for construction of the lione.
Kwangsi Railway Projects a report that Peking had approved expenditure of 1 million taels for this line.
Honan Railways , surveys for this line were underway.
Taiyuan-Pingting Chow Railway report that a French loan was being negotiated.
Canton-Hankow Railway, a report that construction work had resumed.
Amoy Railway, a report that the first engine had arrived from Germany but no rails had been laid.

Chefoo-Wei Hsien Railway the "Chefoo Post" reported that money was being raised for this project and attempts were being made to obtain government aid.
Tientsin-Yangtze Railway a report that an Anglo-Greman loan had been secured which gave full government control calming local agitation against the loan.
Mukden-Hai Lung Railway, areport that a Chinese comopany was trying to obtain a concession and subscribers had raised some capital.
Canton-Hankow Railway Deficit, a report that funds paid for this line had perhaps been misappropriated and little of the line had beem laid.

April 1908
Hong Kong-Canton Railway, a three-page plus report from G.W.Eves, Chief Resident Engineer of the British Section of the KCR, describing the railways alignment and construction up to 31st December 1907. The line was expected to be opened in mid-1910. 4 construction photographs of the line near the tunnel from Kowloon to Shatin.
South Manchurian Railway, an article reporting the development of Tairen (Dairen) by the SMR with a description of the new port, railway workshops and the regauging of the tracks from 3'- 6" to standard gauge. Includes 5 small photographs including Consolidation type locomotive supplied by Alco.
Shantung Railway Company, during 1907 the line carried 886,000 pasengers & 395,000 tons of freight.
Yuet-Han Section Opened, the second section had been opened to traffic in February.
Kiao-Yi Railway, arrangements between the concessionaire of the Tientsin-Pukow Railway and Peking.
Peking-Kalgan Railway Construction, the chief engineer had been directed to construct a light railway to Petaling for carrying supplies to that point.
Railway Paper, the Canton-Hankow Railway was to issue a weekly Chinese paper reporting progress.
Peking-Hankow Railway Redemption, Peking was considering raising a domestic loan to purchase the Belgian Syndicate's interest in this railway.
Shaoshan Extension of the Pinghsiang-Shantung Railway, Peking had sanctioned the line.
Mongolian Railway, The Chinese Government intended to build a line to Urga.
Canton-Hankow Construction Supplies, the directors had decided to order 60 construction cars from the Tongshan works.
Railway Hospital in Manchuria, medical schools and hospitals to be provided by the SMR.
Manchurian Standard gauge , a report that the track between Dalny (Dairen) and Mukden had been upgraded to standard gauge. The remainder of the eunire railway woould be competed by July
Honan Railway Construction, an initial line between Lohyang and Tunkwan would be built with later extensions.
Shanghai Terminal, the terminal for the Shanghai-Hangchow-Ningpo Railway was to be at Shanghai and not Soochow.
Chinese Eastern Railway, freight traffic had fallen since the Japanese secured control of the southern section.
Changchinfu-Kirin Railway Construction, work was to be no longer delayed on building this line with Chinese and Japanese capital.
Yellow River Bridge, a report that this bridge would cost 165,00 taels & a contract had been awarded to Telge and Schroedar & Co.

May 1908

Opening of the Shanghai-Nanking Railway, an article reporting the passage on 28th March of the first passenger train over the 193 mile railway at an average speed of 35 miles an hour. The highest speed achieved was 57 miles an hour with the whole journey taking 5hours 37 minutes. A list of invited guests and railway company officials is included.

Proposed Cheffo-Weih Hsien Railway a Peking 7 Tienstin tomes report suggested that invitations for subscriptions for building this line would be sent out.

Shanghai-Sungkiang Railway a report that this 24-mile stretch of railway had been opened on 20th April, connecting Shanghai-Hanchow & Ningpo line.

Kiangsu Railway, the line had been opened for traffic as far as Sungkiang.

Heilungkiang Railway, it had been decided to build the section between Ngaun-Chi and the provincial capital first.

Tientsin-Pukow Railway, the site for the station at Sinchwang had been selected and land secured.

Hong Kong-Canton Railway, Peking desired to work co-jointly with the British so that the Chinese section would not be delayed.

Trans-Formosan Railway, the entire line was opened on 1st May.

Manchurian Broad Gauge, opening of the broad gauge line had been postponed to May 20th when it would be possible to proceed through to Kwangchentz instead of Mukden.

Tientsin-Pukow Railway, the £5 million loan had been oversubscribed.

Kirin-Changchun Railway, the survey and estimate for the 30 mile line had been completed.

Sanning Railway, a 40 mile section between Kung Yip and Sam Hap was expected to be completed year end.

Belgian Syndicate Interests, the Belgians had requested permission from Peking to extend the Chengting-Taiyuanfu line to Hsianfu and to build a number of coal line branches.

Tai-Tsao Railway, the proposed line would be made a branch of the Tientsin-Pukow line.

Peking-Hankow Railway, negotiations for the redemption of this line were continuing.

South Manchurian Railway, the head office would be transferred from Tokio to Dalny. Also a breakdown of how ¥100,000,000 would be spent on improvements.

ina, Manchuria, Japan, Indo-China, Siam, Straits Settlements, Malay States, Burma, India, Malaysia, and the Philippines

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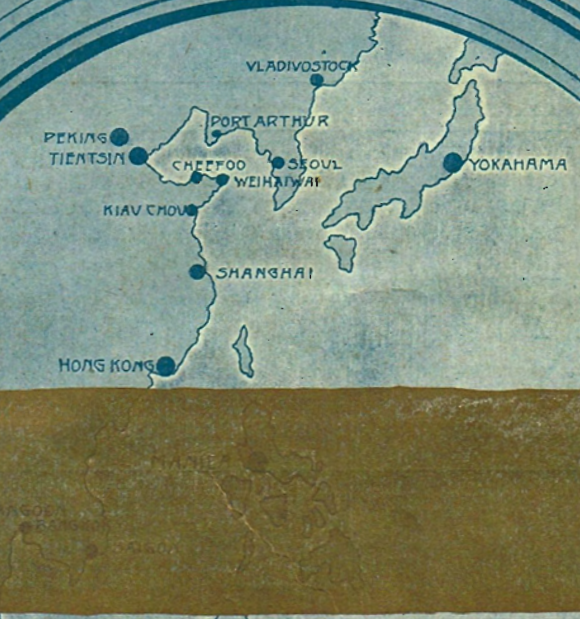
THE FAR-EASTERN REVIEW



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Forty Ounce Gold Bar.—Benguet Consolidated Mining Co.

ENGINEERING, COMMERCE, FINANCE.

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FAR EASTERN ENGINEERING, CONSTRUCTION, COMMERCIAL AND FINANCIAL NEWS

ELECTRIC RAILWAY, LIGHT, POWER, ETC.

TOKIO ELECTRIC TRUST.—The amalgamation of the Yokohama Kyodo Eelectric Light Company and the Kanagawa Electric Light Company was completed on May 16.

HONGKONG ELECTRIC.—The Hongkong Electric Co., Ltd., have decided to pay a dividend of 10 per cent, write off 44,120 for depreciation and carry forward to next account, $2,951. It seems to have been a fairly satisfactory year.

KONGMOON TRAMWAY.—A Hongkong merchant, Mr. Yip Yin, of the firm of Wah Yik Company, has applied for permission to float a company with a capital of $1,300,000 to build an electric tramway at Kongmoon, in Sanwui district.

YOKOHAMA ELECTRIC EXTENSION.—The Yokohama Electric Railway Company has applied to the Kanagawa Prefectural Office for permission to extend the present terminus in front of the Kanagawa Station to Gotemmachi, via Shichikencho, Takisbitacho, and Ryoshimachi.

NIPPON AUTOMOBILE CO.—A consultation meeting of the shareholders of the Nippon Automobile Company which lately obtained official permission to run automobiles for passenger traffic in Tokyo, was held in the Y. M. C. A. at Kanda, Tokyo, recently, when a resolution was passedto reduce the Company's capital by 2,000,000 yen.

ELECTRIC TRAM SERVICE FOR NANKING.—A Nanking dispatch states that work upon an electric tramway between the Viceroy's yamen and Hsiakuan, where the steamers of the Yangtse service moor, a distance of about six miles or so, is to commence without delay. The contract for laying the line was given by Viceroy Tuan Fang last December to Tsotai Wang Feng-hao.

NAGASAKI-MOJI TRAMWAY.—The authorities are now considering an application from the Nagasaki Electric Lighting Company for permission to construct an electric tramway from Nagasaki to Moji. The residents of the latter place have decided to present the land required for the scheme in their district, as they believe the construction of the tramway would materially benefit Moji.

CHANGE TO ELECTRIC POWER.—The Buso Central Railway Company, which recently obtained official charter to construct a railway from Sendagaya, Tayotamagori, Tokyo-fu to Odawara, Kanagawa prefecture, a distance of 53 miles, has decided to change the proposed steam motive power into electricity. The Company will apply to the authorities for permission to effect this alteration.

INDIAN ELECTRIC TRAMWAYS.—Consul General W. H. Michael reports as follows from Calcutta: The progress of the mining industry of Mysore State is shown by the fact that the government has issued an order under the Mysore Tramways Regulation Act of 1906 authorising the construction by the Mysore Manganese Company (Limited) of a tramway (electric line of railway) from the Shimoga railway station to the manganese mines near Kumsi in the Shimoga district.

CHINESE TRAMWAY FOR SICAWEI.—A Nanking dispatch to the "Shenpao" states that a certain Taotai Wen Ho presented a petition the other day to Viceroy Tuan Fang to the effect that the former had obtained a mercantile capital of a million taels and offered to construct the proposed electric trams in Nanking. In reply the Viceroy stated that the Government having already decided to itself construct the Nanking electric trams, the money was not needed in that city but the petitioner could use the money obtained by him to construct a trolley line connecting Sicawei with other parts outside the foreign settlements.

SPRINKLERS ON SIAM TRAMWAYS.—The Siam Electricity Company will in the near future have in use for watering the roads over the whole of their tramway system a water-sprinkling-electric tramcar of the McGuire-Cummings type. The tank is a horizontal cylinder 5′ by 9′6″ mounted on an ordinary tram truck, and will have a capacity of 1,200 gallons. Connected with the tank will be a turbine pump with electric motor which is able to deliver 250 gallons a minute, 100 feet head, and for ordinary use this will throw a horizontal spreaded stream of water 50 feet to the side from the centre of track. This tank will also be of great use in case of fire. It will also be fitted with hose, and a one inch fire nozzle. By this means a stream of water can be thrown 80 feet. The pump can raise the water from 25 feet and fill the tank in five minutes."—*Journal of the Engineering Society of Siam.*

WIRELESS TELEPHONE.—A wireless telephone of the most simple nature has been invented by Mr. Tako Shojiro of No. 45, Gochome, Aoyamaminamicho, Tokyo. The inventor is a young man of 27 years of age. The new machine is now named after the inventor, the Tako wireless telephone. He claims, according to the *Tokyo Asahi*, that his system is far superior in every respect to others in the world, of which there are now two different kinds. Whereas the latter are defective for practical purposes, it is asserted that the Tako wireless telephone can be worked quite easily and perfectly between ships in motion and even across walls, which are effectual obstacles for its rivals. Moreover, the new contrivance is simple in construction and cheap in price. It is further stated that it can be connected with ordinary telephone apparatus and easily worked. In February this year the inventor applied to the Patents Bureau for a patent for his invention, but official sanction has apparently not yet been granted.

SIAM TRAMWAY EXTENSIONS.—"Important agreements were signed between His Majesty's Government and the Siam Electricity Co. Ltd., and the Menam Motor Boat Co. Lt.," says the *Bangkok Times*. In the case of the Electricity Co. the new agreement forms an addition to the agreement signed on the 9th November 1901, and provides for the construction of a line along Rajawongse-road, an extension of line from the terminus at Pakanam Railway bridge for 400 metres along the Hua Lampong-road, and the construction of a line on the Asadang-road (beginning near Messrs. John Sampson and Son's) and running to the river. The Menam Motor Boat Co. have secured the right to construct and operate a line from the northern mouth of the Paklat klong to and through the town of Paklat.

The Electricity Co. undertakes under penal clauses to provide fire engines and pumps and a staff ready to go anywhere over their system by night or day in case of fire, and further to provide five elevated water tanks with a capacity of 25 tons each for fire protection. In addition the Company undertakes to water the streets daily over which their system passes.

RAILWAYS AND RAILWAY SUPPLIES

HOKKAIDO RAILWAY CO.—The Hokkaido Railway Company held a general meeting in Tokyo on May 15th. During the last half year, the company sustained a loss of *yen* 86,607.29.

SHANSI RAILWAY.—The chief engineer of the Peking syndicate has reported to the Governor of Shansi that the railway from Pingtingchou to Tsechou in Shansi, which just been surveyed, will be completed in four years.

AMPO RAILWAY.—There appears to be a strong probability that the reconstruction of the Mukden-Antung line—known in Japan as the Ampo (Antung and Hotien) Railway—will be abandoned in favor of a road from Kirin to Antung.

KIRIN-CHANGCHUNG RAILWAY LOAN.—Peking wires that the sum of money the Chinese Government is going to borrow from the South Manchurian Co. for construction of the Kirin-Changchung railway is stated to be something like 4 million *yen*.

CHINESE RAILWAYS.—The Chinese department of posts and communications has decided that all railway concessions granted to mercantile syndicate shall last for 25 years only, and that after the expiration of 25 years the railways will become the property of the Government.

KAGOSHAMI RAILWAY EXTENSION.—The Yatsushiro-Toshimatsu section of the Kagoshima Railway will be opened to traffic in April or May next year, when Tokyo and Kagoshima will be connected, the only interruption being the Bakan straits. The journey will then be covered in about 40 hours.

ASAN RAILWAY CO.—Official charter was given under date of May 2 by the Japanese government to the Asan Railway Company to construct a line from Muyomachi in Tokushima prefecture to Takamatsu city in Kagawa prefecture, a distance of 42 miles 30 chains, with a capital of 2,000,000 yen.

BUSO CENTRAL RAILWAY.—Official charter was granted under date of May 6 to lay the Buso Central Railway from Sendagaymachi, Toyotamagori, Tokyo-fu to Odawara, Kanagama prefecture, a distance of 53 miles. The scheme is promoted by Mr. Amenomiya and 81 other persons with a capital of 2,500,000 yen.

PROPOSED KOREAN RAILWAY.—Messrs. K. Okura, T. Nagamori, and twenty other persons are promoting a railway company with a capital of 20,000,000 yen for the purpose of constructing a railway between Gensan and Chinnampo via Phyong-yang, a distance of 191 miles. The promoters have applied to the authorities for a subsidy of 6 per cent.

KWANSEI RAILWAY CO.—At the Kwansei Railway Co.'s general meeting at Yokkaichi, Mr. Katsoka, President of the Company, spoke on the conditions during the last half of 1906 and on the government's proposal with regard to the nationalization of the railway. The half-yearly net income was *yen* 803,544.95 and an interim dividend was declared at the rate of 6.32 per cent per annum.—*Japan Advertiser.*

THE HSINMINTUN-MOUKDEN RAILWAY.—Notwithstanding that all railway materials and tools that were prepared for the Hsinmintun-Moukden Railway are not included in the agreement for transferring the line to China, these have all been handed over to China under the orders of Mr. Goto, the president of the South Manchurian Railway Co., in order to improve the relations between Japan and China.

MANCHURIA RAILWAY EQUIPMENT.—Vice-Consul P. S. Heintsleman advises that the head office of the newly organised South Manchuria Railway Company will be located in Dalny (Tairen). The vice-president informed the vice-consul that the gauge is to be broadened to standard; double tracking is to be effected to Mukden 247 miles from Dalny, and possibly farther north; the whole roadbed is to be improved and the stations enlarged, which will require three years.

PHYONGYANG-GENSAN RAILWAY.—The construction of the Phyŏngyang-Gensan Railway, to be taken up by a private concern as recently decided upon, is not likely to be commenced at an early date. The railway constructed will connect Pyŏngyang with Gensan and Chinnampho. But the construction of the Phyŏngyang-Gensan section is an extremely difficult work. Unless a dividend of 6 per cent is guaranteed by the Government no private company will be able to take up the work.

YUNNAN RAILWAYS.—The French railway syndicate in Yunnan asked Viceroy Ting Changto of Yunnan and Kueichou some time ago to grant a concession to build a railway from Yunnan to Ssechuan. The Viceroy, however, has not granted their demand.

The gentry of Yunnan now have appealed to the Viceroy to build the railway themselves. They state that the annual revenue of receipts in Yunnan amounts to Tls. 1,560,000 (Revenue, Tls. 600,000; Salt, Tls. 260,000; Rice; Tls. 700,000), which should be sufficient to build the railway.

THE PEKING-HANKOW RAILWAY.—The receipts of the Peking-Hankow railway for the year amounted to $7,200,000, of which $2,200,000 was devoted to general expenses, 2,300,000 to interest on the Belgian loan, $400,000 to interest to the board of finance, and $200,000 to a reserve fund, leaving a balance of $2,000,000. Of the latter sum one-fifth is apportioned to the Belgian syndicate, thus $1,600,000 remains as net profit. The receipts for the year show an increase of over twenty-five per cent on the previous year's working, and shareholders are looking forward eagerly to the longed-for redemption of the loan bonds.

TOYAMA-NAOYETSU RAILWAY.—The railway line between Toyama and Naoyetsu is now in course of construction. The Toyama-Uwotsu section (17 miles 65 chains) of the line is expected to be completed by the end of this year. Work on the Uwotsu-Ichifuri section (20 miles 33 chains) is to be started in the course of the present year, and the Naoyetsu-Nagahama section (100 miles) has been just started, while the Nagahama-Ichifuri section (33 miles) is now in course of land survey. This latter section is the most difficult part of the work, there being such precipitous places as the well-known Gyashirasu and Koshirasu where a number of tunnels are to be built. It will be four years before this line is open to traffic.

KWANGCHENGTSE RAILWAY STATION.—A telegram from Kwangchengtse, Manchuria, reports that an extensive area of ground between the town of Changchung and the Russian railway station has been selected as the site for the construction of the Kwangchengtse railway station which will serve as a connecting link between the South Manchurian, the East China and the Kirin-Changchung railways.

The *Hochi* says that an understanding has already been effected between the South Manchurian Railway Company and the Chinese authorities, whereby it is agreed that as soon as the former raises a loan of yen 80,000,000 in Europe a part thereof shall be supplied to the Chinese authorities who are in need of funds for the construction of the Kirin-Changchung and other lines east of the Liao.

AN ARCTIC-URAL RAILWAY.—The Committee which examines all projects for new railways at St. Petersburg granted to M. von Knorre a concession to lay down a railway, which will be of great importance in developing the trade of Western Siberia. The projected railway will start at Sobam, which is on the left bank of the river Obi, nearly 20 miles southwards of Obdorsk, and its northern terminus will be on the Varandei Bay in the extreme N. W. corner of Siberia on the Arctic Ocean. A commercial harbor will be established on Varandei Bay, and a river-port on the river Obi. The total length of the line will be nearly 250 miles. The preliminary surveys have been made by the engineer who built the Baltic Railway, and he estimates the cost of laying down the Arctic-Ural Railway at £4,200,000. The line will be built by a private syndicate, in connection with which an export company will be founded on a large scale.

THE SOUTH MANCHURIAN RAILWAY COMPANY.—The total sum required to improve the various establishments of the South Manchurian Railway Company is estimated at about 27,880,000 yen. Of the above, about 10,510,000 yen is needed for the reconstruction of the Tairen station, for repairs to the Tairen, Changchung and other lines; for the construction of the Company's buildings, reconstruction of various stations along the lines, establishment of coal depots, and other works, while the remaining 17,370,000 yen is needed for the manufacture of 240 locomotives and over 3,000 passenger coaches and goods cars.

The work of repairing the entire length of the railway will be commenced by the middle of June. The Company has concluded a contract to purchase railway sleepers and other materials from the Mitsui Bussan Kaisha and the Okura Gumi, and has ordered 180 locomotives, 60 passenger coaches and 2,000 goods cars from America. Of the above seven locomotives and a number of passenger coaches are to be delivered to the Company by the end of June. It is reported that the transportation capacity of the South Manchurian railway will be doubled in a year.—*Japan Advertiser.*

PUBLIC AND PORT WORKS, WHARVES, ETC.

FORT WILLIAM MCKINLEY IMPROVEMENTS.—Work is now in progress on a ₱150,000 military prison at Fort McKinley, near Manila. The building will be constructed of reinforced concrete.

LOOCHOO ISLAND HARBOR IMPROVEMENTS.—Work for the improvement of Nawa harbour, Loochoo Island, will be commenced shortly. The cost, amounting to 700,000 *yen* was recently voted by the Diet.

BOMBAY HARBOR BRANCH.—The construction of the new harbor branch line which will serve the new Bombay docks is making good progress. A small section, indeed, is being worked for the bulk oil traffic.—*Railways.*

monstrates the superiority of the Santa Mesa product:

DEPARTMENT OF THE INTERIOR.

BUREAU OF FORESTRY, *Feb.* 7, 1907.

SIR:—

I have the honor to submit the following statement of results of tests on two sizes of ropes tested at the Timber Testing Laboratory for the Santa Mesa Rope Works, Manila, P. I.

Rope, 2″ circumference.

Specimen No.	Breaking load. Pounds.
1	1948
2	2267
3	1929
Average	2048

Rope, 1″ circumference.

Specimen No.	Breaking load. Pounds.
1	730
2	876
3	671
Average	759

Respectfully,

(Sigd.) ROLLAND GARDNER,
Mgr. Timber Testing Laboratory.

The above results compare favorably with a summary of results of rope tests made by this Bureau, as published in the last annual report. An extract from the annual report is as follows:

Rope made at	1 *in. circum.* Strength Lbs.	2 *in. circum* Strength Lbs.
Bilibid	709	——
do	431	——
United States	676	3268
Tubbs Cordage Co	703	——
Plymouth Cordage Co	907	——
Ynchausti & Co	——	2058
do	——	1514

GEORGE P. AHERN,
Director of Forestry.

PHILIPPINE HARDWOOD USED IN SUBURBAN CAR CONSTRUCTION

That Philippine products will eventually be largely used in the trades in this country is the firm belief of C. A. Ricks, secretary-treasurer of the Kuhlman Car Company of Collinwood, O. Mr. Ricks believes the Philippines have a great future and is inclined to question the intimation that the United States has a "white elephant" on its hands.

"At the present time several Cleveland firms are directly interested in the islands," said Mr. Ricks. "The Nicola-Stone & Meyers Company, a large lumber house of Cleveland, operates a 60,000 acre tract of timber land in the Philippines and is selling Philippine woods here in Cleveland.

"The Kuhlman Car Company is using Philippine wood called 'lauan' in the interior finish of two big handsome suburban cars now building for the Rochester-Syracuse and Eastern Railway. These will be the first electric cars in the United States finished in Philippine woods, and there is no question at all in a very few months 'lauan' will replace Mexican mahogany in the interior finish of suburban cars.

"I believe that more money will be taken out of the Philippine Islands in lumber alone in the next ten to fifteen years, than was taken out of Alaska in gold in the first ten to fifteen years after the United States purchased Alaska.

"The future wealth of the Philippines will lie mainly in the vast forests of valuable timber which they contain. This view is entertained by the administration, and the most farseeing measures have been adopted to conserve the extensive areas of public woodland.

"The archipelago has never been completely surveyed, but the official estimates, from which the following figures are deduced, probably approximate to exactness. The total land area of the islands is upward of 73,000,000 acres. Of this more than 66,000,000 are the property of the state and about 45,000,000 acres of this public domain are wooded, leaving 21,000,000 acres of land mostly capable of cultivation.

"But the prince of cabinet woods is narra, the mahogany of the Philippines. The tree grows to a great height—120 feet and over—and yields logs by the present process sixty feet in length and seven or more in diameter. The trunk at the roots will sometimes furnish a table top ten to twelve feet across. When cut the heart of the tree bleeds a bright red. The wood is deep red—there is a less prized white variety—and polishes to a brilliant vermillion color."

INDUSTRIAL PROMOTION, JAPAN

Vice-Concul-General E. G. Babbitt, of Yokohama, reports to Washington concerning Japan's industrial investments since the war with Russia and other movements in that direction. He calls attention to the fact that it is reported that only a fourth of the sums subscribed to establish new companies is ever paid in. He writes:—

The amount of capital subscribed for new companies during one month of 1906, was about $18,764,900; to enlarge companies already existing, $6,682,500. This, with the amounts previously subscribed, made the aggregate, since the conclusion of the Japanese-Russian war, about $416,502,040. It is the prevailing custom among Japanese companies to start business with only one-quarter of the shares paid up, and this, the *Japan Herald* says, is held responsible for the alleged insecurity of business interests and for inviting speculative investments. As things are now these quarter shares change hands so rapidly that it is often a difficult matter, at the first general meetings of shareholders, to identify the real holders. Such an arrangement is a check to the real growth of undertakings, and Japanese business enterprises will not attain the solidity of foreign corporations until, like them, the whole or at least three-quarters of the shares are required to be paid up.

There seems to be some reason for apprehending that the business of company promoting in Japan is assuming serious dimensions. According to investigations conducted by the Nippon Ginko (Bank of Japan) capitalization of new enterprises started from July, 1905, to November 30, 1906, including increase of capital, involves 988,729,080 yen (yen=49 cents). The following statistics indicated the nature of such enterprises:—

	New enterprises. *Yen.*	Increase of capital. *Yen.*
Banks	31,970,000	30,747,250
Spinning factories	20,353,000	28,469,080
Electric business	93,310,000	17,080,000
Mining business	44,270,000	3,550,000
Marine products	16,725,000	1,000,000
Railways	294,330,000	72,519,000
Manufacturing industries	149,544,800	64,167,000
Shipping business	5,000,000	8,400,000
Insurance business	30,700,000	13,600,000
Commerce, etc.	44,480,000	18,513,150
Total	730,682,800	258,045,480

Another feature in the development of such enterprises in this country is the growth of the marine-product business. The fishery companies incorporated during the eleven months ending November 30, numbered 17, involving a capital of 14,975,000 yen, of which only 1,825,000 yen has actually been paid up.

CHINESE RAILWAY SCHEMES

With the single exception of education, says the *North-China Daily News*, represented by the feverish establishment of schools here, there and everywhere without regard to the requirements of the districts or to the possibilities of securing the requisite teaching staff, there is nothing into which the Chinese are throwing themselves with such enthusiasm at the present juncture as into the construction of railways. From all sides come reports of lines being advocated, planned and in some cases begun. In distant Yunnan it is proposed to build the Têngyueh railway; in Manchuria there is said to be another scheme on foot to build a line from Hailungcheng to Kaiyuan, which if ever constructed would be a rival to the Mukden-Harbin Railway and to further railway enterprise on the part of the Japanese in that country. From Chaochou to Swatow a railway has recently been completed, which was built entirely with Chinese capital. The construction of this line, 30 miles in length, was placed in the hands of Japanese contractors; it has cost upwards of $3,000,000 and has taken 2½ years to build. The Peking-Kalgan railway line is also in Chinese hands and is proceeding at a proportionate rate. A statement appeared in a contemporary a few days ago to the effect that Russia was dissatisfied with the progress of this line and was endeavoring to hasten its construction. In numerous other districts railway work of a kind is being carried on, while ten days ago the ceremony of turning the first sod of the railway from Shanghai to Kasking was performed outside the South Gate of the native city. This line is said to be in the hands of the Kiangsu and Checkiang Railway Companies, the shareholders of which comprise of gentry and merchants of these two provinces. The scheme is for the Kiangsu Province Railway Company to build the line from Shanghai to Fêngchingchên on the border, while the Chekiang Province Railway Company will carry on the construction from that point to Mashing and thence, it is stated, to Hangchow. This formation of provincial railway companies meets with the support of the Peking authorities, and according to a telegram which we publish to-day the Waiwupu is asking the Governments of the provinces concerned to undertake the construction of a railway from Tientsin to Chinkiang.

It would be well if all these symptoms of railway fever could be taken seriously and were likely to lead to definite results. As things are, however, China does not appear to be going to profit by more than one out of every ten or twenty schemes planned and, perhaps, begun. Officials are availing themselves of the spirit of the times to appeal to their patriotic countrymen to subscribe funds, in order to keep out foreign capital. In the case of the Tientsin-Chinkiang line, indeed, the Waiwupu's request is said to be promoted solely by the desire to thwart foreign claims on this proposed railway. Agents are even being sent to Chinese abroad, notably at Singapore, to collect funds for railway enterprise, and there is no doubt that success is attending the efforts to raise Chinese capital for railway construction.

NEW PUBLICATIONS

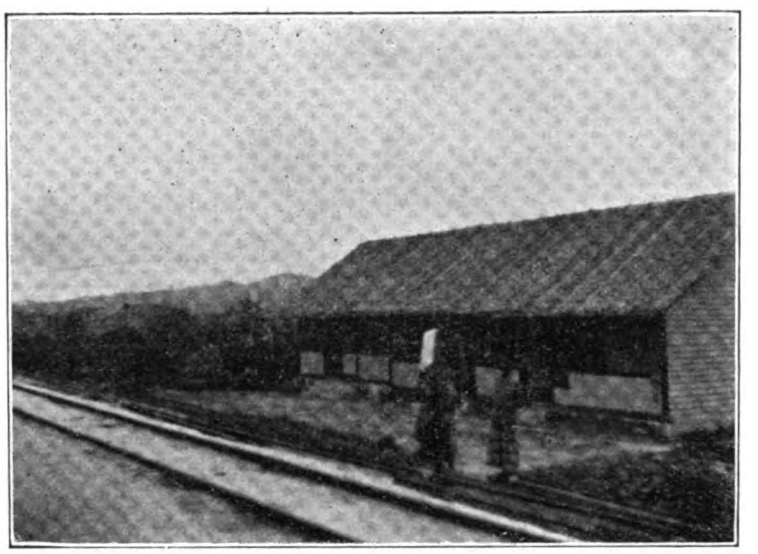
South America is the name of a new illustrated monthly, printed in Spanish and English and devoted to matters appertaining to South and Central America, Mexico and the West Indies, covering commerce, industries, mining, agriculture, finances, science, exploration, travel, fiction, art, literature, music, drama and society It is published by the Latin-American Company, Metropolitan Building, New York City. Mr. J. W. Davis is editor-in-chief, and Mr. Walter J. Ballard is named on the title page as associate editor. A special article entitled "Our Latin-American Trade," written by Mr. Ballard, appears in the preliminary issue.

Crucibles, Their Care and Use, by John A. Walker, is a valuable volume issued by the John Dixon Crucible Co., Jersey city, N.J., U. S. A. The purpose of the book is to instruct users of crucibles in their proper use and to instruct against the dangers of ignorance as to their operation.

The Filipino Teacher's Manual, by H. C. Theobald, A.B., principal of the provincial high school of Batangas, P. I., and issued from the presses of the World Book Co., of New York and Manila, has reached our deck. The volume is intended to assist the native teachers in the Philippines and to encourage them in their work. The author who is familiar with conditions in the Philippines gives the native teachers the benefit of his experiences as a teacher, and from a cursory review the volume appears to have unusual merit and we believe will be appreciated

certainly succeeds in getting his men on to the same end of the rope, and inducing them to pull with him and with each other. He is down on a shirker or a slacker, and such may probably soon find himself moved elsewhere. Good men are attracted, and he himself indents for a good man for Perak whenever he comes across or hears of one. Indeed it is reported, how truly I will not vouch for, that another Resident asked for a good officer for some department, and the answer came back: "None such available." All good officers have been absorbed by Perak. Of course, this does not cover officers of the Federal Government. However, it speaks well, and accounts possibly for the work and the system carried on in Perak.—*London and China Express.*

RAILWAY STATION AT SEREMBAN, NEGRI SEMBILAN, ON THE F. M. S. RAILWAYS SYSTEM



COOLIE LINES, NEAR SEREMBAN ON THE F. M. S. RAILWAYS SYSTEM.—TYPICAL BUILDING OF THIS CLASS

FEDERATED MALAY STATES RAILWAYS

The main trunk lines of the Federated Malay States Railways enters the province of Perak at Parit Buntar on the North and joins the section running through the province of Selangor on the south at Tangjong Malim, the distance between these two points being over 165 miles. The main line continues southward through Selangor for a distance of 81 miles passing through Kuala Lumpur and Negri Sembilan. With the branch roads The Federated Malay States Railways system includes about 400 miles of track.

Other lines are under construction through Pahang and surveys have been completed for the route through Kelatan to Kota Bahru at the mouth of the Kelatan on the coast of the China Sea.

The illustrations refer to the railroad station at Seremban the capital of North Sembilan and coolie lines near Seremban.

These buildings are typical of the respective classes to which they belong.

SUNGEI PENANG BRIDGE

The Municipality of George Town, Penang, has entered into contracts for the construction of a steel bridge over the Penang River on the Jelutong Road which will cost upon completion almost 100,000 dollars silver. The contract for the construction of the abutments, wing walls, etc., has been awarded to C. E. Peterson, the price being $45,290 and the tender of Tan Yee Koon for the filling in and road approaches, pitching, etc., at a cost of $12,000 was accepted.

Messrs. Howard Erskine & Co. were awarded the contract for the construction of the iron work and its erection on the abutments. The price agreed upon was £3,331 3s.

The contracts provide for the construction, supply and erection complete of all steel and iron work required for the bridge and its maintenance in good order and repair for a further period of six months.

The bridge is to have two main steel lattice girders of about 100 feet span between centers of supports and 30 feet span cross girders to be fixed on lower booms of main girders carrying road platform and also cantilevers carrying side footways.

The two main girders are to be placed 30 feet apart clear width of roadway or 32 feet, 6 inches apart center to center of girders.

THE AEROGRAPH

THERE are various methods of applying a coat of paint to a surface, and the usual Indian *mistri's* method of daubing it on with a rag is unknown to Western craft, except in the nursery stages of artistic endeavor. The spray system of applying paint or wash is the latest and most efficient system, particularly for covering large surfaces, and the illustration to this article shows the "aerograph" plant. To quote a home contemporary on the subject:—

"Take its use with any of the washable distempers. It will, without any disturbance, evenly distribute a new coating upon present work without any danger of rubbing up, streakiness or washing off, and in so little time as to be less trouble than a dust-down or wash-over. The spray drives the color into all the interstices of enrichments leaving a beautifully fine stipple-like surface. It leaves no splashes about to be washed off anywhere, and the whole thing is done from the floor in the same time that it now takes to land two men and their scaffolding on a job.

"Then take an outside, stucco-fronted house job. How rapidly it is thoroughly coated from top to bottom—the work of at least four men done in less than the time of one of the four.

"A machine that will evenly distribute a coat of paint thickly or thinly in fine, sharp lines, or cover an area a yard in diameter at will, and only requires the same guidance that the water-can does, has a future to be reckoned with."—*Indian and Eastern Engineer.*

ESPERANTO SOCIETIES

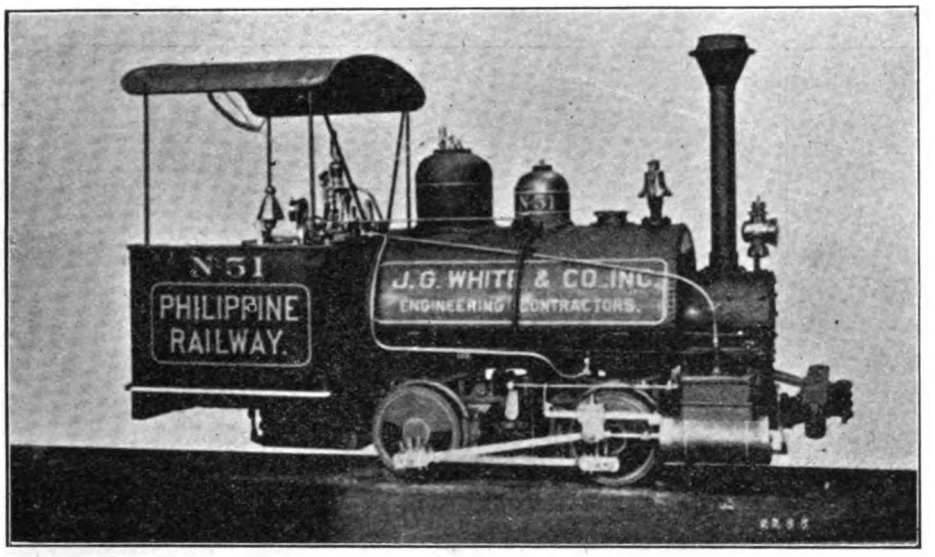
The Philippine Esperanto Society was organized at Manila July 1.

The *Singapore Free Press* announces that the Malaya Esperanto Society has chosen W. G. St. Clair for acting president and S. C. de Souza for acting secretary to complete the term until the annual meeting in December, owing to the departure to Europe of the president and secretary elected for the year.

RAILWAY AND MINING DEVELOPMENT IN CHINA

The reorganization of China has been termed the world problem of the twentieth century, and whether in retrospect it may appear as far reaching as it does in prospect, there can be no doubt that for existing States and political relations its potentialities are vast, and the effects possibly imminent. It is customary to regard the character and policy of Oriental countries, and especially of China and Japan, as largely inscrutable to Western minds; but this vein of thought is little more than the measure of our ignorance of the people and the land—an ignorance which is, perhaps, the most primary reflection presenting itself when we approach the consideration of the current position. One has only to remember the mutually exclusive opinions common as to the ethos of the Japanese nation to realize how complete a bar an entire unconformity of language, literature, and conventional signs presents—a difficulty vastly increased in the case of China by its size, variety, and retarded development. Mere geographical aperception is an obstacle through varieties of spelling and unintelligibility of names, to say nothing of the absence of maps on the scale we possess for other countries. Upon this country, owing to the competition of the Europeanised nations, modern material progress is being rapidly forced, which in the present stage of development of that large and densely populated empire may for practical purposes be considered as railway construction. In the north the transformation is most marked, as, owing to the great political interests involved, money has been poured out abundantly, and Peking and Manchuria now possess railway communication for which they would have waited many years had private or native capital been requisite for its construction. Semi-political considerations also apply to the communications of Peking with the coast, and of Tsingtau with Chinan. Of strictly inland communications there is a big line from Peking to Hankow, connecting the capital with the central provinces. With this exception, however, practically all the railways outside of North China at present working are feeder lines. They are Shanghai to Woosung, which is being extended to Nanking, and will be finished this year; P'inghsiang to Liling, by which fuel is transported to the Shiang river for the Hanyang ironworks and Hankow. There is a small section of railway from Canton to Samshui, open in Kwangtung; and a small feeder line which connects the Hankow-Peking railway with the Peking Syndicate's mines in Honan. Of lines under construction, the most noticeable is the extension of the trunk Peking-Hankow south to Canton, from whence, as we were reminded by a

share issue in this country recently, an extension to Kowloon is in progress. In the south-west the Tonkin railway is under construction as far as Yunnan. A short line is being run from Swatow to Ch'auchou-fu. As we have seen, the Shanghai railway is being completed to Nanking. In Honan, K'aifeng and Loyang are being connected, while further north a feeder line is being run from the main trunk at Chenting to T'aiyuan. North-west from Peking itself communication is being opened with Kalgan beyond the Great Wall. Of projected lines, the most important is the westward extension from Hankow through Hupeh into Szechwan. The Shanghai-Nanking railway will be extended



TYPE OF LOCOMOTIVE ON PHILIPPINE RAILWAY CO.'S LINES

in a southerly direction along the coast as far as Ningpo. Canton, besides the line to Kowloon, will be joined to Amoy and Kanchow-fu in the Kiangsi province. In the same province, Kiukiang and Nanch'ang-fu also are to be connected. The enumeration of these various enterprises, not to mention those less definitely projected, though possibly somewhat unintelligible without the assistance of the map, serve, at any rate, to indicate how extensively the idea of railway construction is being accepted in China, where not long ago it met with equally general hostility. The effect of this policy upon mining and its allied industries, both directly and secondarily as departments of commercial activity, must be of great and increasing importance. China is recognized as being in many provinces extensively mineralized, and there is at the present time considerable prospecting activity. In addition to natural resources, moreover, the Empire possesses what, when conjoined to natural wealth, is perhaps of even greater importance—viz., unlimited labor and a vast home market. These circumstances give a special importance to the coal and iron resources of the country, which are known to be of great magnitude. A promising start has already been made in the production of iron, the exports of which increased from 981 piculs in 1903 to 201,848 piculs in 1904 and 413,209 piculs in 1905, the latest year for which statistics are available, during which year the Hanyang ironworks supplied over 30,000 tons for export. The other metals exported in 1905, of which record appears in the Imperial Maritime Customs returns, were 94,327 piculs of antimony and antimony ore, as compared with 116,434, 141,662, and 180,150 piculs respectively for each preceding year back to 1902. There was a small and declining output of quicksilver amounting to 279 piculs in 1905. The tin output of China is a matter on which considerable uncertainty exists; the exports, however, are given as follows:—1902, 64,284 piculs; 1903, 41,527, piculs; 1904, 50,391 piculs; 1905, 75,302 piculs. In each case the export is practically exclusively derived from the Mengtze district of Yunnan, and is practically all exported to Hongkong. Whether it reaches that port via the Tonking railway, and is thence distributed again into China, or figures as a genuine export oversea, the Customs returns do not make clear; at any rate, there seems to have been a slightly largely amount of tin available from China in 1904-05, as, while the exports were higher in the latter year, the imports were in 1904, 63,950 piculs; and in 1905, 54,170 piculs. So far, however, as affects the metal markets of the world, China is of more importance as a consumer than producer. All will remember the effect produced upon the copper market by the Chinese purchases in 1904 and 1905 for their copper coinage requirements; and if, as has been stated of late, a gold currency scheme were to be adopted, the enormous volume which Chinese trade would be likely to assume, were there a credit system commensurate with that enjoyed by Europe, would undoubtedly make considerable demands upon the existing gold supplies of the world, which, in the opinion of some economists, at any rate already support as much credit canas be reasonably expected. Of the commercial importance of the organization of China upon modern lines, such as has been accomplished by Japan, it is unnecessary to speak, as given national stability it could probably absorb and return good interest on most of the surplus capital which European and American investors are likely to have available over a lengthy period of time. As regards mining investments, however, the conditions are at present exceedingly unsatisfactory. A code of mining regulations was promulgated in 1902 which, in addition to uncertainty of title, fixed royalties of five per cent on the output of coal, iron, antimony, alum, and borax, ten per cent on petroleum, copper, lead, zinc, sulphur and cinnabar, 15 per cent on gold, silver, galena, and quicksilver, and 25 per cent on diamonds and crystals; in addition to which 25 per cent of the surplus, if any, remaining over after the replacement of capital and repayment of interest is claimed as a further royalty. These regulations have since been amended under Articles 9 of the British and 7 of the United States commercial treaties with China executed in 1902 and 1903 respectively; but the new conditions are said to be even more impracticable than those of the 1902 regulations. One serious difficulty would appear to be that uniformity can only be obtained by the creation of some central department of mines, and at present so far as it is possible to judge, the central government does not possess the power to secure the effective observance of such a code by the district and provincial authorities.—*The Mining Journal.*

PHILIPPINE RAILROAD CONSTRUCTION

The work on the proposed lines of railroad in Luzon is being carried on with vigor and the results have exceeded expectations. On the line running north from Dagupan, to San Fernando de Union, fifteen kilometers have been graded and rails laid for ten kilometers.

On the Camp One branch of the Dagupan-San Fernando line from San Fabian to the Benguet Road, eight kilometers have been graded.

Ten kilometers have been graded on the San Pedro Magalang line connecting with the main line of the Manila Dagupan, and on the San Fernando de Pampanga Florida Blanca branch grading has been completed for twenty-four and one-half kilometers; the rails laid for nine kilometers while some ballasting has been done.

On April 17, the Manila Railway Co. began operating the Mariquina-Montalbon branch. This line is 12.9 kilometers in length.

Thirty kilometers of the Manila-Batangas branch have been graded and the rails laid for about two kilometers.

The grading on the belt line in Manila, covering a distance of 9.50 kilometers has been completed.

Ten kilometers have been graded on the Cavite branch or better known as the Cavite short line. This line when completed will cover a distance of 32 kilometers.

The Philippine Railway Co. has completed the grading of 40 miles of the Cebu road and 12 miles of steel have been laid. This work is divided equally north and south of Cebu.

In Panay 20 miles between Iloilo and Pototan have been graded and about three miles of steel laid. Some steel has also been laid in the Iloilo yards.

For the present, construction work has been suspended in Panay on account of the rainy season, and in Cebu it is not expected that much will be accomplished until it is over.

The probable average of hours of clear weather per diem during the rainy season will govern the extent of the operations of the company.

Supplies for the Philippine company are coming in regularly. In all there is sufficient steel in the company's warehouses to lay 80 miles of track. By December the supplies for the construction of all the buildings will have arrived and with the closing of the rainy season in the Visayas and Cebu all work will proceed with renewed vigor. At the present time a small force is working on the proposed building in Cebu, more to familiarize the employees with that class of work so as to be prepared to undertake the more extensive construction after the materials arrive. The steel bridges are expected to arrive in October.

A. K. LA MOTTE BOOK EXCHANGE

A. K. La Motte, the pioneer dealer in books and contemporary magazines, is ever extending his business to keep pace with the growing demand for scientific works in the Philippines. The headquarters at 72-74-76-78 Calle Real, Intramuros, is stocked with probably the greatest collection of valuable works on electrical, mechanical and mining engineering, in the Far East. These volumes are carefully selected and represent the most advanced thought along these lines.

Mr. La Motte takes a great personal interest in catering to a large clientele among the scientists and engineers which is constantly growing.

From a small beginning this firm has grown to be one of the most important in its particular line in the islands. Mr. La Motte sacrificed his business interests in the homeland to follow the American flag to the Philippines and was patriotic enough to remain and cast his lot with the islands and their future.

When Mr. La Motte started in business in the Philippines he decided to work on a strictly cash basis. Every dollar's worth of stock in his establishment is paid for and it is rarely that the value of the stock in hand is less than ₱30,000. He makes a specialty of handling magazines and periodicals and imports as high as two tons of these publications on each

FAR EASTERN ENGINEERING, CONSTRUCTION, COMMERCIAL AND FINANCIAL NEWS

ELECTRIC RAILWAYS, LIGHTING, POWER, ETC.

PROPOSED WIRELESS TELEGRAPHY IN MONGOLIA.—The Board of Communications is contemplating the introduction of wireless telegraphy into Inner and Outer Mongolia.

YAMANOTE TRAMWAYS.—The Government Railway authorities of Japan intend to run electric trams between Shimbashi and Shinjuku on the Yamanote line at an early date.

SHI GU ELECTRIC RAILWAY.—Shingu Electric Railway in Wakayama prefecture has been sanctioned by the authorities. The lines covers 10 miles 68 chains, from Shingu to Katsu-ura.

PROPOSED TOKIO-KOBE ELECTRIC RAILWAY.—The petition for permission to construct an electric railway between Tokyo and Kobe, promoted by Mr. K. Suzuki and twenty-six other persons, was rejected under date of April 15.

SUMOTO-FUKUYAMAKA ELECTRIC RAILWAY.—Official charter was given under date of May 11 to construct an electric railway between Sumoto and Fukuyama on Amaji island, a distance of about 15 miles. The capital of the company is 2,000,000 yen.

TEIKOKU UNYU AUTOMOBILE CO.—The Teikoku Unyu Automobile Company has decided to decrease the capital of 5,0000 000 yen to 1,500,000 yen. One third will be supplied by foreigners. Notice of the payment of the first call on the shares will be issued shortly.

YOKOHAMA ELECTRIC EXTENSIONS.—Official charter was given on May 30 to the Yokohama Electric Railway Company to construct a new electric line from Minami-Yoshidamachi at Yokohama to Komachi at Kamakura, via Ookaga, Hino, Yamanouchi and Yukinoshita.

TOKYO TRAMWAY EXTENSION.—The Tokyo Tramway Co. has been granted licenses for the construction of various lines connecting with the Uyeno Oji line, and also of a line between Tokyo and Narita—a distance of 36 miles—which will be built at a cost of two million yen.

TELEGRAPH LINE IN MANCHURIA.—The Acting Governor of Heilungkiang, Chen Teh-chuan has reported to the Waiwupu that the Russian authorities have proposed to sell the telegraph line along the railways in the provinces of Heilungkiang and Kirin extending over three thousand Chinese li.

RUSSO-CHINESE TELEGRAPH AGREEMENT.—The Russo-Chinese telegraph agreement has been signed. By his agreement the Military lines are to be restored to China at a cost of about 160,000 dollars, and the lines along the River Sungari are restored without any compensation or privileges being demanded.

JAPANESE TELEGRAPHS.—The communications department proposes to construct a special telegraph line between Japan and Korea. The expense will be entered in the Budget for the 41st fiscal year. Hitherto, the Great Northern Telegraph Company's lines were used in the service, and consequent telegraph fees were not so cheap as in Japan.

TIENTSIN TRAMWAY EXTENSION.—The agreement between the Tientsin City Electric Tramway and Lighting Co., Ltd., and the Japanese Municipal authorities for the extension of the Tramway system through the Japanese concession has been signed and the work of laying the lines—started some time ago—will be proceeded with at once.

THE TIENTSIN TRAMWAYS.—Mr. Kato, retiring Japanese Consul-General at Tientsin, and Mr. Gregoire, Director of the Tientsin Electric Tramway Company, signed an agreement concerning the extension of the Company's tramway to the Japanese Concession at this Northern Treaty Port on the 24th instant. By this concession the system will be connected by the shortest route with the Native City and the French and other foreign Settlements. The constructional works will be commenced as soon as materials are ready in the not distant future, so that the useful extension may be completed for traffic as soon as possible.

YOKOHAMA ELECTRIC RAILWAY.—The Japanese Government is favorably disposed to the petition of the Yokohama Electric Railway Company for permission to construct an electric railway to Kamakura and Kanazawa. The Company decided at an extraordinary general meeting of shareholders held in February this year to increase the present capital of 1,000,000 yen to 10,000,000 yen, but owing to the present unfavorable economic conditions, the company held an extraordinary general meeting on June 5 canceling the previous resolution, and will introduce a new bill to increase the capital by 2,000,000 yen, thus making the total capital 3,000,000 yen.

BRITISH GET JAPANESE TRAMWAY CONTRACT.—The "Tramway and Railway World" announces that the first contract for tramway permanent way for Japan, which has been placed in England, has just been secured by Messrs. Edgar Allen and Co., of Sheffield. Hitherto, orders of this kind for Japan have been placed with American firms, but in the present case, after keen competition, the British firm was successful. The contract provides for the supply and construction of the whole of the special track work, lay-outs, cross-over, etc., required for the tramways to be constructed in Osaka.

YOKOHAMA TRAMWAY EXTENSION.—The following new lines of the Yokohama Electric Tramway Co. received formal sanction by the authorities under date of May 22nd.

Coast lines (15 miles 28 chains): From Ryuto-Hachimanbashi near Negishi to Kamakura via Isogot Mori, Morinakahara, Sugita, Tomioka, Kanasawa, Susaki and Sambu. From Sambu to Zushi. Inland, line (10 miles 30 chains) from Yoshidamachi to Kamakura railway station along the O-okagawa and Kamakura street via Koden, Yamase, Ofuna, Yamanouchi and Yukinoshita.

The company is also considering a plan to construct a new city line from Surugabashi over the Minami-Yoshidagawa to Ryuto-Hachimanbashi, connecting with the coast line.

TOKIO ELECTRIC LIGHTING.—The Tokio Railway Company has applied to the city office for permission to engage in electric lighting business in the city in general. At present the company is supplying electric light to Akasaka, Azabu and neighborhood, having succeeded to the right to do so originally possessed by the Tokyo Electric Railway Company. The company hopes to supply the light at a fee lower by 40 per cent than ordinary rates. It will pay a royalty to the city amounting to one-sixth of the balance of the net profit after deducting 6 per cent dividend on its capital. An extraordinary general meeting of the Tokyo Electric Light Company approved the proposal to amalgamate the Tokyo Electric Power Company with the Light Company. A meeting of shareholders of the Power Company approved the amalgamation proposal.

THE SHANGHAI TRAMWAYS.—For the purpose of protecting Chinese interests, the Customs Taotai of Shanghai, Jui Cheng, has been instructed by the Viceroy to consult the native gentry and others in regard to the construction of tramways in the Chinese quarters in the vicinity of the foreign concessions with only Chinese money, to prevent foreign interference in future in view of the existing disputes between the Chinese authorities and the British and French companies which hold the tramway concessions in the international and French Settlements. A wealthy Chinese merchant at Hongkong by name of Wen had recently applied to H. E. Tuan for permission to build the proposed tramway at Nanking and Shanghai with a capital of $1,000,000 of Chinese money; but his application was refused on the ground that the former will be built with Chinese Government funds, while the latter will be constructed by the native gentry and others of the port without outside assistance, as desired by Taotai Jui.—*N. C. D. News.*

MUKDEN ELECTRIC TRAMWAY.—Consul General W. D. Straight, of Mukden, reports as follows: The Japanese military authorities, during the occupation of Mukden, constructed a push-car tramway along the main thoroughfares and from the city to the railway station. Upon their evacuation this property was turned over to the local Japanese Settlement Association, which has intrusted its operation to a Japanese concern called the Okuragumi, and it is between these two that the profits are at present divided. The line is now used almost entirely for hauling materials for the repair of the city streets, which is now in progress, and the passenger traffic is as yet of practically no importance. The Okuragumi, however, plan within the current year to rebuild the road with a broader gauge and install a horse-car service, with the ultimate intention of turning it into an electric line. As it is probable that similar enterprises will be undertaken at other places, there should be a market in the near future for trucks and electric supplies.

RAILWAYS AND RAILWAY SUPPLIES

RAILWAY DEVELOPMENT IN MANCHURIA.—Japan has placed orders in America to the value of $12,000,000 for the equipment of the South Manchurian railway. The high prices paid will ensure rapid delivery of the material.

PEKING-HANKOW RAILWAY EXTENSION.—A proposal is being considered by the gentry of Shantung for the construction of a branch of the Peking-Hankow Railway from Tsen-tao Station to Chinanfu, a distance of 400 li.

SZECHWAN-HANKOW RAILWAYS—Negotiations are being entered into between the British Syndicate and the Hongkong and Shanghai Banking Corporation for a loan of Taels 15,000,000 for the Szechwan-Hankow railway.

TIENTSIN-CHINGKIANG RAILWAY.—Yuan Shik kai has proposed to arrange a loan with British and German syndicates for the purpose of constructing the Tientsin Chiang Railway.

The Waiwupu seconds the proposition which is being submitted to the Throne for approval.

INDO-CHINESE RAILWAYS.—Ting Ching-tu, Viceroy of Yunnan, has wired to the government that the French authorities have prepared a fund of sixty million francs for the construction of the railroad from Mengtze to Lao-kai. There are now seventeen Italian engineers engaged for the surveying work of that line which will be completed at the end of next year.

THE PEKING-HANKOW RAILWAY.—According to a telegram from Peking dated May 4, the Chinese Post and Telegraph Department is going to purchase the railway between Peking and Hankow by means of a loan from an Anglo-Chinese syndicate. It is reported that even if the syndicate advance the money, it will not be allowed to interest itself directly in the railway.

RAILWAY FOR KUANGSI.—The main line of the railway which the Chinese Government intend to build in the Province of Kuangsi is to run from Kwei-hin to Yungfu, Liu Chou, Kwei Hsien, Hsien Yeh, Yu-hin, Popie to Pakhsi. Work on the following sections will be commenced almost immediately: Kwei Hsien-Pakhoi; Kwei Hsien-Lin-Chou, Kwei Hsien-Kwei Lin and Kwei Hsin-Wuchow. The regulations specify against the employment of foreign capital.

KAGI-GAI AND ARISAN RAILWAY.—Messrs. Fujita & Co., Osaka, are constructing a railway between Kagi-gai and Arisan, in order to carry timber from the great mountain forests. The railway is only 50 miles long, but the forest is 5,000 feet above the sea level, and in consequence the rails are being laid at the grade of one in twenty. The capital was originally fixed at four million *yen*, but it is found the railway alone will cost four millions, and the company has therefore increased the capital by a million *yen*. The work will be finished in 1909.

TOKIO CENTRAL RAILWAY DEPOT.—According to a new plan for the Central Railway Station in Tokio, which was recently submitted to the Railway authorities by Dr. Tatsuno, the station will be three-storeys in height and will occupy a site covering 2,700 tsubo, at a cost of yen 2,500,000. The middle portion of the structure will be reserved for the exclusive use of the Imperial Court, while the right and left wings will be used by the public. On the second floor, there will be a large dining hall, hair dressing saloons, billiards, bath rooms, restaurants, etc. On the third floor, a hotel will be conducted.

TIBET ROPEWAY COMPANY.—A concern has been formed under the name of The Tibet Ropeway Company, Ltd., for the purpose of carrying goods by means of a wire-rope tramway at a lower cost and much quicker than they can be transported in any other way from India into Tibet. The company's prospectus says that a concession has been secured from the Government of India, and the details given of the estimated expenditure and revenue indicate a return of 20 per cent dividend on the undertaking, even on the basis of present trade, which, with improved and cheaper transport, will be sure to expand almost immediately.

ELEVATED RAILWAYS IN TOKYO.—According to the original programme the year 1909 was the date fixed for the opening of the elevated railway between Shinsenza and Eirakucho, Tokyo, but the date will be postponed a little. The fact is that a change will be introduced into the original plans for the construction of the Central Railway Station at Marunuochi, which will be much larger than was originally proposed. In addition to this, the authorities are also planning the construction of elevated railways which will connect the Sobu, the former Kobu, and the former Nippon railways. The total length will be 2½ miles and the expenditure is estimated at yen 25,000,000, including the purchase price of land, etc. The above estimate will be submitted at the next session of the Imperial Diet for approval.—*Japan Advertiser.*

THE CHUAN-HAN RAILWAY.—H. E. Viceroy Chang Chih-tung has telegraphed to the Yuchuanpu protesting against the proposed loan of French capital for the construction of the long-talked of Chuan-Hsan or Szechuan-Hankow trunk railway. H. E. Tsên Chun-hsuan, new President of this Ministry, is in favor of building the line from Chêngtu through Yünnan and Shansi to Honan to connect with the Kaifêng-Loyang or Kaifêng-Chênchou branch line of the Peking-Hankow railway, instead of from Hankow direct to Chêngtu as originally suggested by the Viceroy Hsi Liang, late of Szechuan (now Viceroy of the Yun Kuei provinces). As the proposed Chuan-Han railway will be the most important and profitable line in the upper Yangtze provinces, H. E. Chang Chih-tung thinks it should be built with Chinese money without either British or French financial assistance. H. E. has dispatched Taotai Kao Lin-yü of Hupeh here to consult the Peking Government and the President of the Yuchuanpu in person about the question.—*N. C. Daily News.*

MANCHURIA RAILWAY CONSTRUCTION.—Consul-General Willard D. Straight transmits the following from Mukden:

The Viceroy of the Province of Kiriu (Manchuria) reported that he intended in March or April to commence the construction of a railway between Changchun and the city of Kirin, a distance of about 80 miles. The capital to be employed is given as 40,000,000 taels (about $30,000,000). The sleepers necessary have already been secured and the rails are now in process of construction at Hupeh. The rolling stock is to be purchased abroad. A small part of it is said already to have been ordered through a German firm at Newchwang, and the Viceroy has dispatched a representative to Peking to arrange for the purchase of the remainder.

It is reported in the local press that the Board of Communications at Peking, upon the recommendation of the Imperial High Commissionners, after their tour of investigation through Manchuria, has decided at an early date to begin the construction of a railway from Kaiyuan, a point on the South Manchurian Railway, to the city of Hailungfu, a distance of about 90 miles. It is said that the earnings of the Peking-Tientsin and the Peking-Hankow railways will be used as a part of the capital.

HONAM RAILWAY LOAN.—The Chinese Government has instructed H. E. Li Sheng-to to borrow another 16,000,000 francs from a Belgian Syndicate for the use of the Honam Railway.

SZECHUEN-HANKOW RAILWAY.—President Tsen Chun-hsuen is inclined to alter the route of the Szechuen-Hankow Railway, the new scheme being to enter Szechuen through Shensi Province.

JAPANESE FREIGHT RATES.—The railway department made a freight reduction on June 1 for the conveyance of cocoons, on those lines formerly called Ko-bu and Sanyo as follows:—dried cocoons, 2½ *sen* per ton mile, raw cocoons, 3 *sen* per ton mile.

MANILA RAILWAY CO.—The traffic receipts of the Manila Railway for the week ending June 18 were $67,398 against $35,860 for the corresponding week of 1906, making an aggregate of $979,919 against $732,872 for last year.

MANILA RAILWAY COMPANY.—The few outstanding "A" and "B" bonds, and the First Mortgage Registered stock and 6 per cent notes not deposited under the scheme were paid off on June 13, 1907, when interest ceased.

MANILA RAILWAY.—The traffic receipts of the Manila Railway for the week ending May 6 were $50,619 (including extensions, 207 miles open,) against $45,430 (main line only, 132 miles open) for the corresponding week of 1906; making an aggregate of $650,109 against $506,806 for last year.—*Mail and Express.*

KOBU RAILWAY TRANSFER.—The Kobu Railway has been notified by the Government that the price of the railway in the transfer to the Government has been fixed at 13,665,858 *yen*. The interest on the sum is 683,272 *yen*. Each share of the company (110,000 shares) is valued at about 124 *yen*.

KANSAI RAILWAY COMPANY.—Official announcement is made that the nationalization of the Kansai Railway Company, Japan, will take place on October 1. This means that the scheme by which the Japanese Government was to take over the various leading railways during a term of years will be applied to the Kansai Railways on the above-mentioned date.

KOWLOON-CANTON RAILWAY.—Recent heavy rains in one construction of the Kowloon-Canton railway, have wrought havoc with the temporary works of the line.

A very gloomy picture of the condition of things prevailing on the section leading to the southern or Kowloon mouth of the tunnel is presented by those who have traversed the route.

THE SWATOW-CHAO-CHOW RAILWAY.—The railway from Swatow to Chao-chow has just been completed. The distance is 90 li, and the construction has cost 2,500,000, the Chinese in Singapore and other British Settlements being mainly responsible for the funds. At the outset the merchants and gentry of Kwangtung had no confidence in the undertaking and placed every obstacle they could in its way. But this was eventually overcome, although not before several riots had taken place.

JAPANESE RAILWAY RELIEF FUND.—The Imperial Railway Department institutes a relief fund for employes of the Government Railways. The employes will contribute 3 per cent. of their wages to the relief fund, from which they are given relief in case of necessity. We are glad that the Government railways have taken the initiative in improving the circumstances of workmen in Japan

KOWLOON-CANTON RAILWAY.—Work is proceeding fairly well on the Kowloon Railway. in spite of the interference caused by heavy rain. The tunnel in the Shatin is in over 500 feet, but progress is now very slow because absolutely solid granite has been reached, and every inch has to be drilled. The main shaft above the Valley is down for 120 feet—it is being worked by Italians. On the south side very good progress is reported, while bridge and ballast work is proceeding apace on the way to Tiapo.

TIENTSIN CHINKIANG RAILWAY.—At a meeting of the principal merchants and officials of the province of Chihli, in Peking, it was resolved that the line should be constructed in three sections, one in Chihli, one in Shantung and one in Kiangsu, the cost of each section to be raised by its respective province. The foreign concession, in May 1898, was granted to the Deutsch-Asiatische Bank and the British and Chinese Corporation, represented by the Hongkong and Shanghai Banking Corporation. The northern half of the line was to be under the control of the German bank, and the southern half was to be under the control of the Hongkong and Shanghai Bank, and to run from Tahsien to Chinkiang on the Yangtse.

THE SANNING RAILWAY.—It is generally reported that the roadbed of the Sanning railway has been condemned by an engineer who has inspected the work. In the first place the roadbed is not wide enough and no mortar or cement was used in its construction, so that the first heavy engine which passes over the road will cause the loose mud and dirt piled up to sink. The work must therefore be done over again in many places, and the hope that the line will be in running order at the end of the year must be deferred. The work is, however, slowly going on and the station house at Sanning City is slowly rising, so that the men who have it in charge mean to go forward with that part of the work as fast as possible.

PUBLIC AND PORT WORKS, DOCK WHARVES, ETC.

TSINGTAU PUBLIC WORKS.—The budget of the German colony of Tsingtau for 1907 provides for the expenditure of 2,300,000 mark on harbor improvements and 1,000,000 marks on the construction of roads, etc.

KOBE HARBOR WORKS.—Cargo-sheds and other provisional construction of the Kobe Harbor Works have been constructed at the mouth of the Minatogawa. At present materials for reclamation and other works are being collected. The work will be completed in seven years.

PORT ARTHUR HARBOR.—The harbor office of the Port Arthur Admiralty has cancelled the projected sale by tender of "blockading" and sunken vessels and has decided to blow up these vessels at a cost of Y360,000. The operation has already commenced and the entrance of the harbor will be entirely free before the end of this year at the latest.

SANDAKAN HARBOR DUES SUSPENDED.—It is announced in the "British North Borneo Herald" of June 1 that no harbor dues will be exacted for a period of two years in the case of vessels calling at Sandakan for coal for bunkering purposes only. If vessels bring or take away any cargo no exemption will be allowed.

SASEBO DOCKYARDS.—Soon after the conclusion of peace the naval authorities started the work of building three new dockyards at the Sasebo naval arsenal. The new docks will have each the length of 780 feet, 700 feet and 600 feet. Reclamation work has recently been finished and the completion of the whole work will be some time in the beginning of 1909.

JODELITE TO PRESERVE TIMBERS.—According to the *Singapore Free Press*, it is estimated that between 3,000 and 4,000 gals. of Jodelite will be used by the contractors, Sir John Jackson, Ltd., for treating the timber to be utilized in connection with the Singapore Harbor. The contractors have used this preservative for similar work in many parts of the world and its efficacy in thoroughly protecting every kind of timber against the attack of white ants, teredos, dry rot, and decay is no longer in doubt.

THE MAULMAIN-MYAWADDI RAILWAY.—Writing on the Maulmain-Myawaddi Railway the Singapore Free Press observes:—If the Siamese Government will run a comparatively short line westwards to join up with the projected railway from Maulmain to Myawaddi, there will be in a few years a direct railway between Rangoon and Bangkok, giving all the advantages of a rapid connection for mails, passengers and lighter lines of goods traffic. As regards passengers from Siam bound for Europe, it would be a great economy in time to proceed from Bangkok to Rangoon. There are a good many interests in Singapore that will have to keep an eye on the possibilities of this Burma Government line to Myawaddi, and its ultimate junction with a line from Bangkok.

FRENCH CONCESSION IMPROVEMENTS.—H. E. Tuan Fang telegraphs to the Waiwupu stating that according to the report of the Shanghai Customs Taotai, Jui Cheng, the French consul-general has requested permission to dredge the creek outside the West Gate to facilitate water communication. As the creek is situated just outside the city wall in the vicinity of the French Concession, Taotai Jui Cheng has been instructed by the viceroy at Nanking and the Governor at Soochow to dredge it with Chinese funds, so as to preserve the sovereign rights of China. The expenses are to be defrayed by the provincial treasury at Soochow. The dredging work will commence at the West of the Hsia bridge and terminate at the Jihhunkong.

PENANG HARBOR SURVEY.—H. M. S. Merlin, survey ship, arrived in Colombo on May 21 and will be coming through Singapore. She was formerly a sloop, but has been re-fitted at Sheerness as a survey ship. She is on her way to China for a two years' sojourn in Chinese waters where she will be employed in survey work. She is a sister ship of the "Cadmus" and "Clio." She was first commissioned in May, 1903, for a service in the East Indies Squadron, but after a little over a year's service there she was sent home, on the reduction of the Squadron to be sold out of the Navy. The Admiralty thought better of it, and she will be retained on the active list as a survey ship. From the 24th April up to the 11th instant the "Merlin" was busy searching for a rock reported twenty years ago. The survey covered an area of 200 miles but the rock was not found. On the 11th instant the vessel left Socotra for Colombo. She has been commissioned to survey the Penang harbor and its vicinity. This work is to be over in six weeks' time, when the "Merlin" will proceed to British North Borneo. She will next get to Hongkong where the drawing charts of the work already done will be completed.—*Penang Gazette.*

MANILA RAILWAY CHANCES.—The financial correspondents of an evening contemporary writes:—

Were it merely the traffic position of the Manila Railway that we were looking at, the future would seem hopeful, for the traffic position is entirely encouraging. But under the arrangements of some months ago the company will pass into American control, and at the moment the rearrangement of its finances, which is the necessary preliminary to the important development work which the company will have to undertake, is delayed by market conditions, which are not exactly conducive to any simple consideration of raising capital. The investor of means, however, who is prepared to wait a short time for the rearrangement of the company's affairs should have a very good chance, in locking away 6 per cent debentures, now at 114 or so, of a substantial profit. For, before anything final can be done, the question of dealing with the arrears of these debentures has to be taken in hand, and as the arrears are very heavy, it is evident that there must be a very substantial concession. Those who are possessed of means and patience might very well acquire some of the stock for a highly promising profit when the arrears question is settled.—*London Mail and Express.*

SHIPBUILDING, GENERAL MARINE, FISHERIES, ETC.

CANTON TRANSPORTATION.—Certain merchants of Canton are forming a company to run several steam launches between Canton and Fatshan, for carrying merchandise and passengers, especially the former.

HARBIN FISHING COMPANY.—Mukden wires that a fishing company has been established in Harbin with a capital of 400,000 *yen*. The company's aim is to engage in fishing on the Sungari and Nonne.

BURMA PEARL FISHERY.—The Burma Government are disposing of the right to collect pearls and pearl-shells without diving apparatus and to collect green snails and sea slugs in the Mergui Archipelago for the year 1st July 1907 to 30th June 1908.

CABLE TO SAGHALIEN.—The Japanese authorities are planning to lay down a submarine cable between the coast provinces of Siberia and Saghalien, in order to cope with the great trade development now in progress in Eastern Siberia.

KOREAN SEA PRODUCTS.—A company has been formed among the Japanese in Fusan to exploit the sea products of Korea. A Japanese has been sent down there from the residency general to be present at the opening of the deliberations of the promoters of the organization.

OSAKA IRON WORKS.—The Osaka Iron Works now employs 3,800 men and has the following construction work in hand:—Four steamers, of from 750 tons to 1,800 tons gross each; a dredger of 300 tons; a whaler of 120 tons; a tank steamer of 65 tons; and other smaller vessels.

LARGE SMELTING FURNACE.—At Edamitsu Iron Foundry there will be built a large smelting furnace in addition to the present two furnaces. But much time being required in purchase of materials necessary for its construction the work will not be commenced for some six months.

MARINE PRODUCTS BANK.—A scheme is contemplated among the leading marine products merchants of Tokyo and Osaka to establish a bank for the purpose of affording facilities to marine products merchants. Mr. Matsuoka, Minister of Agriculture and Commerce, Mr. Kamiyama, Director of the Marine Products Bureau, and other prominent officials are supporting the scheme.

LAUNCH FOR DAVAO.—Ethan E. Allen of the Steam Engineering Department of the Cavite Navy Yard has just delivered a thirty foot launch to Mr. Crowthurst of Davao. The launch is equipped with petroleum engines of powerful pattern and was taken from Manila to Davao under her own power. Mr. Allen is an expert in petroleum engines and the equipment on the launch *Fury* is the result of most successful experiments.

NEW JAPANESE STEAMERS.—The Mitsu Bishi Dockyard and Engine Works has received an order from the Toyo Kisen Kaisha for the construction of a passenger steamer of 13,500 tons, in addition to the two 13,000 ton vessels now under construction, and a tank steamer of 12,000 tons. The passenger boat is to be completed for sea by September, 1909, and the other by March of the same year.

NIPPON YUSEN-KASIHA.—The dividend of the Nippon Kaisha for the business term ended April last will be at the same rate as in the previous namely 12 per cent. Owing to the sudden increase of steamers, both foreign and domestic, after the late war the net profit of the company for this term was less than that of previous terms, but there being reserves amounting to 700,000 *yen* from last term there is no decrease in dividend.

DAI NIPPON TRANSPORTATION CO.—The Japan Mail states that the leading transportation, shipping, and landing agents of Yokohama and Tokyo have organized the Dai Nippon United Transportation Company with a capital of $2,500,000. The company will establish branches at important ports throughout Japan. All Japanese shipping and landing, in Yokohama, it is said, were to close their offices on February 1 and join the new concern.

HUGE JAPANESE FLOATING DOCK.—The construction of a floating dock large enough to accommodate a steamer of 12,000 tons for the Mitsu Bishi Yard at Kobe has now been taken in hand, says the *Japan Chronicle*. The total weight of the iron works of the dock, we are told, is 5,000 tons, a portion of which, weighing about 1,000 tons, has been ordered from England. The rest is being made at the Imperial Iron Foundry at Wakamatsu near Moji Part of the material has already arrived at Kobe. The dock is expected to be completed in the spring of 1909. The cost is estimated at close upon yen 1,700,000.

OSAKA-HONGKONG STEAMSHIP LINE.—There is a scheme among navigators of Okinawa Prefecture (the Loochoos) to open a steamship line between Osaka and Hongkong, via Kagoshima, Naha (the Capital of the Loochoos), Formosa, Amoy and Foochow, asking the Government for a subsidy of 250,000 yen for five years at the rate of 50,000 yen per annum. The scheme will be executed after the completion of the proposed Naha harbor works and in that case two certain steamship companies in existence will be amalgamated.

FAR EASTERN ENGINEERING, CONSTRUCTION, COMMERCIAL AND FINANCIAL NEWS

ELECTRIC RAILWAYS, LIGHTING, POWER, ETC.

HANGKOW ELECTRIC LIGHT PLANT.—The Electric Light Works at Hankow have progressed so far that the concessions will be supplied with electricity, on and after Oct. 1st.

PEKING CITY RAILWAY.—Construction of the city railway in Peking has been postponed. An electric tramway will be constructed between Peking and Weihoyuan to begin with.

CHICHIBU ELECTRIC RAILWAY.—There is a scheme on foot to construct the Chichibu Electric Railway between Omiyamachi and Koishikawa (Tokyo), a distance of 51 miles, with 3,500,000 yen capital, of which certain foreign capitalists have already agreed to invest 2,000,000 yen.

WIRELESS TELEGRAPHY IN CHINA.—The wireless telegraphy apparatus, ordered by the manager of the Canton branch of the Chinese Imperial Telegraph, through Messrs. Carlowitz & Co. of Shameen, has arrived and it is proposed to install a station at Whampoa for trial in connection with the central office at Canton.

BHAMO-MOMEIN RAILWAY.—A railway connecting Burmah with Yunnan which follows the trade route from Tali-fu has been proposed. A reconnaissance survey for a 2 ft. 6 in. line has been made. This line will be worked by electricity as there is an abundance of water power along the route that may be utilized for the generating of electricity.

AKASHI-TOYAZAWAMURA ELECTRIC RAILWAY.—The Home Office has granted permission to the Harima Electric Railway Company, promoted by Mr. Kumejiro Taki, to construct an electric railway between Akashi and Toyazawamura in Harima. At the same time applications by Mr. Kanzo Matsuo, Mr. Eiji Suga and others for permission to construct electric railways, have been rejected because these railways traversed almost similar routes.

F. M. S. TELEGRAPHS AND TELEPHONES.—One thousand three hundred and eighty-one miles of telegraphs and telephones were in operation during the last fiscal year in the Federated Malay States. This represented 2,509 miles of wire, of which 1,063 miles were telephone wire, including 395 miles of wire kept up for the sole use of the Police. The cost of maintenance was $36,737; there was spent on construction $52,081; and the revenue derived from telegraphs was $52,858. New telegraph offices were established at Lenggong and Grit in Upper Perak.

The expenditure (included in the $52,081) on telephone construction was $40,439; and the subscriptions realized $12,449, an increase of $5,510.

RAILWAYS AND RAILWAY SUPPLIES

MUKDEN AND HSINMINGTUN RAILWAY.—The work of widening the gauge of the Mukden and Hsinmingtung Railway has been commenced.

AMUR RAILWAY SURVEY.—The land survey for the construction of the Amur Railway has been completed. Construction is expected to be finished in 1912.

KYUSHU RAILWAY.—The construction work of the Oita line of the Kyushu Railway has been suspended, the railway having been purchased by the Government. The work will probably be resumed in April next year.

INDIAN RAILWAYS.—In addition to the nine millions already appropriated for railway construction in India it is understood that another million will be made available for that purpose during the current year.

KURUN RAILWAY.—The Imperial Resident at Kurun has telegraphed to the Government urging it to immediately construct the Kurun-Kalgan Railway, and proposes to appropriate Tls. 300,000 from local funds to commence work.

BUKIT MERTAJAM-KEDAH RAILWAY.—The government of the F.M.S. is reported to have authorized the exploration of a proposed railway route from Bukit Mertajam in Wellesley province to a point in Kedah thus tapping a rich mineral belt.

SINGAPORE KRANJI RAILWAY.—The annual report on the working of the Singapore Kranji railway shows that during 1906 the receipts fell $7,502 below those of 1905. The decrease in passenger receipts is due "to fewer passengers going to gamble."

TRANS-SIBERIAN ROUTE.—Messrs. Shewan Tomes & Co. of Hongkong have secured the agency for the Trans-Siberian Route. It is now possible to reach London from Shanghai in 19 days and this will be reduced by two days when the Talien line is completed.

F. M. S. MOTOR CAR SERVICE.—The F. M. S. Railways Department has inaugurated a motor car service between Kuala Lumpur and Ampang, and two cars may now be seen running daily with passengers. The charge is five cents per mile, the minimum charge being fifteen cents.

MANILA RAILWAY COMPANY.—The traffic receipts of the Manila Railway for the week ending June 15 were $52,206 (including extensions, 207 miles open 1907) against $37,886 (main line only, 127 miles open, 1906) for the corresponding week of 1906, making an aggregate of $1,208,493, against $863,205 for last year.

MANILA RAILWAY.—The traffic receipts of the Manila Railway for the week ending June 22 were $42,641 (including extensions, 207 miles open 1907) against $34,343 (main line only, 127 miles open, 1906) for the corresponding week of 1906, making an aggregate of $1,251,314, against $897,548 for last year.

NEW BRANCH LINE IN INDIA.—The Railway Board have sanctioned a survey being made by the agency of the Burma Railways Company for a line of railway between a point on the Prome line in the neighborhood of Nattalin or Paungde and Kyangin on the west bank of the Irrawaddy, a distance of about 30 miles.

FORMOSAN RAILWAY.—The Government-General of Formosa intends to construct a light railway between Kagi and Fanshuliao, which is the centre of camphor manufacture in the island, for the transportation of camphor and other articles. The authorities lately purchased railway materials for 100 miles from the war office.

MANCHURIAN RAILWAY DEAL.—It is the subject of discussion in high diplomatic circles that France and England are desirous of taking over the South Manchurian railway; and, as the Japanese can not, at present, obtain the funds necessary, either in Japan or in Europe, it is not improbable that some such scheme will eventuate.

CHINA CUTS FREIGHT RATES.—China has reduced the goods tariff on the Hsinmintun-Mukden Railway by 30 per cent and proposes a further reduction as soon as the line has been completely reconstructed.

This action is considered to be intended as a heavy blow for the Japanese railway in respect of the trade of Newchwang.

CENTRAL BUSO RAILWAY.—The construction of the Central Buso Railway, a distance of about 48 miles from Sendagaya, Tokyo, to Odawara, Sagami province, via Atsugi and Hadano, will be proceeded with. At the instance of Messrs. K. Amenomiya, Z. Yasuda and eighty others the scheme has been formally sanctioned by the authorities.

FATSHAN-KONGMOON RAILWAY.—A third meeting was held recently at Fatshan for making arrangements for the floating of a company to build a railroad connecting that town with Kongmoon. There was a large attendance and the scheme was unanimously approved of by all those present and arrangements will soon be completed for the floating of the company.

NEW RAILWAY IN MANCHURIA.—Consul-General Ragsdale, of Tientsin, reports that the military governors of Kirin and Heilungkiang are consulting with a view to building a railway line between Peituanlintzu, a place situated to the north of Harbin, and Sanhsing, 500 li (about 520 miles) east of Sungari River, for which permission has been granted by the board of communication.

THE SHENSI RAILWAYS.—A proposition to the effect that the railways in Shensi Province should be constructed with capital raised in Shensi, Kansu and Honan, having been fully discussed by the Board of Posts and Communications, has been submitted to and approved of by Their Majesties. The provincial gentry and officials are accordingly instructed to proceed to give it effect.

KUANGTUNG-MACAO RAILWAY.—The viceroy of Kuang tung has informed the Waiwupu that Lin Pinghua has asked for the cancellation of the concession for laying a railway between Kuangtung and Macao. The Waiwupu has ordered Chang Chenghsun to send in all the papers in connection with the railway so as to enable the Waiwupu to open negotiatoins with the Portuguese minister to Peking.

BRITISH RAILWAY CONCESSION IN CHINA.—Mr. W. Runciman, parliamentary secretary to the treasury, has stated that the final contracts have been concluded for the Shanghai-Nanking and Canton-Hongkong railways. As regards the remaining British railway concessions, negotiations were proceeding, and though progress was slow the Government did not anticipate that China would fail in the end in regard to the obligations she has incurred.

MATERIAL FOR MANCHURIA RAILWAYS.—The greater part of the construction materials of the South Manchurian Railway is now in course of transportation from America. The price amounting to 20,000,000 *yen* is to be paid up by the end of the present year. In this connection the company has decided to issue the loans which were postponed at an early date. Negotiations are said to be going on this matter with the capitalists of England and France.

CHINESE MILITARY RAILWAY PROPOSED.—Owing to the difficulty of transporting modern drilled troops to Kiangpeh with the means which are now at the disposal of the authorities, H. E. Chang Chih-tung, Viceroy of the Liang Hu, has suggested to the Throne the expediency of laying a light military line of railroad from Hupeh into Kiangpeh. Pending the approval of Their Majesties H. E. has instructed his subordinates to purchase the necessary material.

KWANGSI RAILWAY CO.—Advices from Kwangsi state that the people of that province are contemplating the formation of a Kwangsi Railway Company by the floating of a company with a capital of $15,000,000. The capital is to be raised by subscription in shares at $5 each for the construction of the railroads in that province. A line will be constructed from Wuchow to Kwei Yuen district and thence to Nanning, etc. The telegram requested the Canton-Hankow Railway Company and the Nine Canton Charitable Institutions to assist the promoters in soliciting shares.

KUANCHENGTZU RAILWAY STATION.—A Russo-Japanese agreement relating to the Kuanchengtzu station was signed at St. Petersburg June 13th. According to the agreement, the present station is to be divided as a principle, into two equal parts between Russia and Japan. Japan cedes her share of the station to Russia at the price of about 600,000 *yen*. Japan will establish a station called Changchun at a place between the existing station and Changchun city. The division of the railway track between Japan and Russia will be performed by the South Manchurian Railway and Chinese Eastern Railway Companies, probably within this month.

RAILWAY SCHEMES FOR SHANTUNG.—A Chinanfu correspondent writing on June 22 to the "China Critic" says:—I am informed that the contract has been signed for immediate building of the road from the Yihsien coal mines to Taierhchwang on the canal, and that the line will be operated by steam, not by animal power as hitherto reported. This road should be of immeasurable benefit to southern Shantung. As for these coal fields, their productiveness is even now limited only by lack of transportation facilities. Two well-known German firms are joint contractors for the railroad but the capital is said to be all in Chinese hands. It is presumably to be a link in the Tientsin-Chinkiang line.

NEW KOREAN RAILWAY.—We learn from vernacular contemporaries that it is now decided to float a company to be named the Gen-nan Tetsudo Kaisha, which has been projected by Messrs. Okura, Asano and other financial magnates of Tokyo, to construct a railway between Gensan and Chinnampo, a distance of 190 miles. The capital of the company is fixed at Yen 20,000,000. An application has been received by the Nagoya Chamber of Commerce from Mr. Iwata, Chairman of the Gensan Chamber of Commerce, who is a member of the promoting committee of the new company, asking for support to the scheme, as it was beyond the power of the Japanese in Korea to accomplish the undertaking alone.

ROLLING STOCK FOR RUSSIA.—According to a Consular report noted in the Deutsche Submissionsanzeiger, the Russian Government has decided to order during the year 1907 the following rolling stock: 1,000 goods wagons, system Breidsprecher, to be used without reloading on foreign railways; 150 wagons for the transport of manganese ore on the Tschiatulsk branch of the trans-Caucasian Railway; 150 refrigerating cars for the transport of Siberian butter and 1,000 ordinary goods trucks and platforms of 900 pounds capacity; 20 mixed carriages, first and second class, on four axles; 10 passenger carriages, second class, on four axles; 60 third-class sleeping cars, system Guensburg, and 8 baggage vans on four axles.

F. M. S. RAILWAYS.—In his report for the year 1906 the general manager of the Federated Malay States Railways shows that the mileage open on the 31st December last was 428 miles 67 chains, an increase of 32 miles 35 chains, the length of the last section on the main line between Tampin and Kuala Gemas opened to traffic on the 1st October last. The length of the main line from Prai to Kuala Gemas is 351 miles 13 chains; and the branches Taiping to Port Weld, Tapah Road to Telok Anson, Batu Junction to Batu Caves, Kuala Lumpur to Port Swettenham, and Tampin to Malacca, aggregate 77 miles 54 chains.

In addition there were 60 miles 74 chains of siding, an increase during the year of 8 miles 46 chains, making a total of 489 miles 61 chains of railroad in operation.

CANTON-HANKOW RAILWAY.—The following resolutions were passed at the meeting of the Canton-Hankow Railway Company, which took place July 10 at the Company's office:—(1) That another section of the trunk line in the Kwangtung province, about 64 *li*, in addition to the other twenty sections and all other works be pushed on by engaging more engineers, and the completion of the whole trunk line should be completed with two years' time and then to commence the building of the branch sections. (2) That the iron and coal mines, the products from which are for the Company's use, be at once opened up as well as the timber felling from the vicinity of Kiungchow and Ngaichow to supply the Company with materials. (4) That an iron works be opened under the same regulations and in the same manner as the Hupeh Iron Works, for the purpose of repairing engines, machinery, rolling stocks, etc. of the company, and only Chinese engineers be employed in the proposed works.

PUBLIC AND PORT WORKS, DOCKS, WHARVES, ETC.

PIERS AT PORT DICKSON.—Messrs. Riley, Hargreaves & Co., Ltd., have secured the contract for a large new Pier at Pulo Sambee and also for extensive additions to the Railway Pier at Port Dickson.

KUANTAN HARBOR IMPROVEMENTS.—A big engineering scheme is now before the Pahang Government, and that is the improvement of the Kuantan harbor which will include extensive dredging operations which may probably run into millions.

HUANGPOO IMPROVEMENTS.—The Peking Government has authorized the Shanghai branch of the Imperial Government Bank (Hupu-bank) to pay to the Huangpu Conservancy Board an amount of several million Taels which is requested for the work on the river.

CONSERVANCY OF THE LIAO RIVER.—Viceroy Hsu Shih-chang has wired to the Yamen of the Comptrollers of Customs, asking it to request Sir Robert Hart to send engineers of the Harbor Department to survey the River Liao so as to effect conservancy works there.

FATSHAN WATERWORKS.—The leading merchants of Fatshan are proposing to float a water works company in that town by subscription under the same regulations as the Canton Waterworks. It is reported that surveying work has already commenced in the different streets for the purpose.

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THE TONKIN-YUNNAN RAILWAY

The construction of this railway has been the subject of much criticism of the French authorities from time to time in regard to the treatment of the laborers employed. It now develops that these reports were unfounded, according to the most reliable information, and that no less than the report of C. H. Brewitt-Taylor, commissioner of customs at Mentze for the year 1906. The commissioner makes particular reference to this important work and goes extensively into the conditions good and bad with which the French colonial government had to contend. His conclusions point to a most humane policy in dealing with the labor. This included the expenditure of large sums of money in the maintenance of hospitals and in providing adequate medical service throughout the entire construction.

The criticisms appear to ha e been based on the surface indications of the battle with disease in the unhealthy Namsi valley. This section once completed there appears to have been a prompt elimination of complaint of any kind and it is well-known that the battle against native ignorance was far more serious than that against disease. The French government, according to the report of the commissioner, did everything in its power to alleviate suffering and to make the laborers as comfortable as possible, but this task was no easy one when the lack of co-operation on the part of the natives in battling with disease is considered. In fact the work on this unhealthy section of the road was abandoned in the summer and resumed in the winter months in order not to expose the laborers.

The wages paid ran all the way from 40 to 60 cents a day and, in addition, rations were supplied. The cost per day of the average laborer is estimated at about $1.20 so that the claim that they were underpaid does not seem to be well founded. To feed 50,000 laborers is no small undertaking, and it might be expected that grumbling broke the monotony in more than one camp. However, there does not seem to be any justification for the repeated attacks on the French management. Indeed it would seem that a well organized attempt was made to discredit the French government and to encourage among the Chinese the prejudice against foreign investment. It is most fortunate that the enemies of the management have been confounded and the public set right by the unequivocal statement of Commissioner Brewitt-Taylor.

Referring to the magnitude of this undertaking the *Hongkong Telegraph* says:

"It is stated that the direct distance between Hokow and Yunnanfu is nearly 300 kilometers; that along the line, graded that no incline exceeds 25 millimeters per meter, and with no curve of less than 100 meters radius, is 463 kilometers. The country being wholly mountainous, of red clay and limestone, tunnels and bridges are numerous. There are 147 tunnels, aggregating 15¼ kilometers in length, the longest, now nearly finished, being 650 meters. Of these, 105 have been actually pierced and are in course of enlargement to the necessary section. Only four are as yet untouched. There will be 74 bridges of all sorts over 20 meters long, some of masonry, some of steel. The longest in masonry will be 70 meters with 10 arches; the longest in steel, of 17 girders of 8 meters each. One steel bridge of 65 meters span is a single girder. The line starts from Hokow at a height of 90 meters above sea level, passes through a 315-meter tunnel at Milati at a height of 1,700 meters, thence descends to Amichow height 1,063 meters, passes Iliang at a height of 1,635 meters, and Shuitang at 2,019 meters, whence it descends to Yunnanfu, 1,886 meters."

SUGAR BARONS ARMING FOR THE FRAY

For the first six months of the present year the policy of the American Sugar Industry and Beet Sugar Gazette, one of the leading sugar journals of the world, was marked by a spirit of fairness that was remarkable in view of the selfishness of the interests in America that it is supposed to represent. But now all that is changed. In the issue of that journal under date of July 20, the management announces the restoration to the head of the editorial department of Mr. Frank Roderus and in the same column repudiates the policy of the journal for the six months ending June 30. We quote:

"The new management, which is really the old with a short interregnum, takes this opportunity to repudiate unqualifiedly the editorial policy pursued during the past six months. It is needless to define what that policy was. Suffice to say that in the absence of a management possessing adequate practical acquaintance with the industry and experience in the conduct of this publication as well as in the history of American sugar, a policy was pursued which was not satisfactory to the trade nor in harmony with the past record of this publication.

"Perhaps the most important question that will come up for consideration in the near future is that of tariff revision, or tariff concessions to other sugar producing countries in connection with the colonial policy of this country.

"It is true that the latest semi-official utterance from the present administration contains assurances that there will be no tariff revision proposed by the Republican party before the next presidential election. It is possible, however, that this assurance refers only to a general revision of the protective tariff, while sugar may be taken up in connection with colonial affairs, which the general public would not consider as directly connected with the tariff question. In the past history of the sugar industry in this country it is just such covert attacks that have proved the most dangerous and injurious to American farmers and manufacturers. The concessions made some years ago to Cuba are an instance in point. This matter did not come up under the head of tariff revision, but under the specious plea of helping the Cubans, who were then in a more or less dependent position, not differing very greatly from that of a colony except in matter of form. It will not do, therefore, for American sugar men to rest assured in the statements of policy with regard to the tariff in general, and to relax their watchfulness. This journal means to insist that the party in power shall abide by the declaration embodied in the Republican platform of June, 1896, which said: 'The Republican party favors such protection as will lead to the production on American soil of all the sugar which the American people use and for which they pay other countries more than $100,000,000 annually.' "

"It is possible that the time may come when the American sugar industry will be sufficiently developed to compete successfully with that of other sugar producing countries. But until that time arrives, if it ever does, this journal will continue to urge upon the sugar men of the United States the necessity of constant effort, and watchfulness *to prevent further favors being granted to tropical sugars*. Other countries have successfully developed their domestic sugar industry by the assistance, not only of protection, but of bounties, until today their industries are able to stand without these aids. The American sugar manufacturer does not ask any bounty; he merely asks protection until such time as the natural development of the industry will enable him to compete on an equal footing with sugar producers in other countries."

So now we are to understand that any kind words, any spirit of fairness that has crept into the columns of the journal during the months it did not happen to be under the selfish supervision of the sugar trust, are repudiated and that a campaign is to be inaugurated with the object in view of serving monopoly at the expense of the interests of American manufacturers, and the Filipino people who are justly entitled to special privileges not accorded foreign nations, so long as those privileges do not endanger any American industry.

The sugar interests of the United States have been invited to point out in what way the importation of Philippine sugar into the United States free of duty to an amount not in excess of the shortage annually, woud injure the industry there. Have they responded?

The vote of the House of Representatives on the subject is sufficient answer to that question even if the questionable tactics of the

FAR EASTERN ENGINEERING, CONSTRUCTION, COMMERCIAL AND FINANCIAL NEWS

LEECTRIC RAILWAYS, LIGHTING, POWER, TELEGRAPH LINES, ETC.

SUNGARI RIVER CABLE.—Russia has turned over to the government of China the complete control of the telegraph system and Sungari river cable.

TOKIO'S CIRCULAR RAILWAY.—The Japanese government has decided to run electric passenger cars on the railroad that encircles the capital, but all freight will be carried by steam trains for the present.

BAKAN ELECTRIC TRAMWAY.—The Japanese Department of Home Affairs has given permission for the construction of the Bakan Electric Tramway which will run between Shimonoseki and Akama and four other branch lines, the total mileage being 7 miles and 70 chains.

BORNEO WIRELESS SYNDICATE.—A company has been formed with a capital of 2,650,000 florins for the purpose of establishing a wireless telegraph system between Java, Celebes, Borneo and the neighboring islands. It is understood that the Dutch Indian government has granted a concession to the company.

RAILWAY TO BAGUIO.—The Speyer Syndicate is reported to have agreed to build an electric line from Camp One on the Benguet road to Baguio provided that the War Department agree to establish a brigade post at the Philippines summer capital. This line will connect Manila by rail via Dagupan and Camp One with Baguio.

ELECTRIC RIPENING OF FRUIT.—Ripening of fruit by electricity is one of the latest achievements of science. The ripening experiments have been tried for the most part with bananas, and have proven this fruit may be ripened as wanted for shipment, simply by regulating the lights. This is an immense advantage to shippers over the ordinary methods.

ELECTRIC LIGHT IN PEKING.—The Taohua Electric Light Company has filed a protest against any foreign concern installing electric light outside the Legation quarters in Peking. The Dutch Minister to Peking the doyen of the diplomatic corps, has advised the Waiwupu that the matter shall be reported to the home governments of the foreign ministers.

LIGHT AND WATER POWER COMBINE AT TOKIO.—Negotiations are being carried on between the Tokio Electric Light Co. and the Katsuragawa Water Power Co. looking to the amalgamation of the two companies. Both companies secure their respective motor power from the common fountain at Otsuki and the amalgamation is expected to reduce the cost almost one-half.

INDIA'S FIRST ELECTRIC RAILWAY.—The first Electric Railway in India will, in all likelihood, be the Nilgiri Railway with its new extension from Coonoor to Ootocamund. A scheme for the electrification of the line has been investigated by the Madras Government which purchased the undertaking two years ago and the question of the expenditure involved in carrying out the proposed scheme is now under the consideration of the authorities.—*Railways.*

MELBOURNE ELECTRIC TRANSPORTATION.—Hon. Thomas Bent, in a recent address to a number of British capitalists interested in electrical industries in Australia, says the London Times, remarked that one of the objects of his visit was to arrange for the electrification of the suburban lines running from Melbourne. The State was prepared to expend $15,000,000, but he had found great difficulty in coming to any decision as to which particular system to adopt. Those present were interested in Mr. Bent's assurance that British capital, whether invested in electrical enterprises or anything else in the State of Victoria, was absolutely safe,and that they could be satisfied that no socialistic legislation would injure their investments.

RAILWAYS AND RAILWAY SUPPLIES

KUANGSI RAILWAY.—The survey of the Kuangsi railroad route has been ordered. It will begin at Wuchow.

AMUR RAILWAY.—The opening ceremonies incidental to the initial work of construction of the Amur railway were held at Srotensk, July 18.

YOKOHAMA BELT LINE.—The short line connecting the Yokohama railway station and the Yokohama customs will be in operation in July 1908.

SHANHAIKWAN-NEWCHWANG EXTENSION.—The Japanese have made a vigorous protest against the extension of the Shanhaikwan-Newchwang railway beyond Hsinmingtung.

BANGKOK AUTOMOBILE GARAGE.—A Belgian Company has been formed with a capital of 1,000,000 ticals (30 cents) for the purpose of establishing an up-to-date garage at Bangkok.

SHANTUNG RAILWAY EXTENSION.—Germany has asked the Peking government for permission to extend the Shantung line of railway into the interior of China by way of Honan.

KWANSI RAILWAY CO.—A company with a capital of ₱15,000,000 known as the Kwangsi Railway Co. has been organized to construct railways in the Chinese province of that name.

EAST INDIAN RAILWAY EXTENSION.—The survey of a line 59 miles in length, connecting Sainthia with Berhampore by way of Kandi, is being carried on by the East Indian Railway.

WEIHSIEN-CHEFOO RAILWAY.—The Peikng government has authorized the construction of the Weihsien-Chefoo railway connecting the cities of Weihsien, Huanghsien and Chefoo.

DELI-PALEMBANG RAILWAY.—A railroad in Sumatra connecting Deli on the east coast with Palembang on the south is now being surveyed under the direction of the Netherlands India Government.

PUNTUNG RAILWAY.—The first section of the Puntung railway in Shanshi has been surveyed and construction work will be pushed as rapidly as possible. This road will tap the wealthiest sections of China.

YOKOHAMA RAILWAY.—The construction of the railroad between Yokohama and Hachioji will be completed before the end of the year. The management announces that traffic over the road will begin January first.

KASHGORIA RAILWAY.—The Russian government has made application for a franchise for a railroad between the New Dominion of China and Kashgaria. The Chinese are making a strenuous objection to the granting of this privilege.

SAGHALIEN RAILWAYS.—The Russian government has appropriated about 2,500,000 roubles to be expended in the construction of a light railroad to the mines at Vladimir and for a railroad in connection with collieries near Zuisky.

MUKDEN-ANTUNG RAILROAD.—It is the purpose of changing the route of the Mukden and Antung railroad between Fengwengcheng and Mukden on account of the difficult nature of the country and in addition to double track the entire road.

MANILA RAILWAY.—The traffic receipts of the Manila Railway for the week ending August 6 inst. were $42,693 (including extensions, 207 miles open), against $32,466 (main line only, 127 miles open) for the corresponding week of 1906; making an aggregate of $1,334 434, against $964,457 for last year.

BURMAH RAILWAYS CO.—Five locomotives and tenders are in course of construction in the shops of Messrs. Robert Stephenson & Co., Darlington, for the Pegu-Moulme in extension of the Burmah railway. A dozen platform weighing machines have also been ordered from the firm of Messrs. W. T. Avery Co.

DAMAGE TO MANCHURIAN RAILWAYS.—Heavy floods damaged many bridges between Tairen and Tashihkiao and interrupted traffic early in the month of August. Similar damages were sustained between Mukden and Antung and on the ultra-mural road north of Shanhaikwan The repair construction promises to provide against a recurrence of damages by floods.

PEKING JEHOL RAILWAY.—It has been decided to build the proposed line with Chinese government funds or rather from the net profits of the Imperial Railways of North China. The new line will be known as the Ching-Ie Tieh-lu railway. Construction will begin as soon as the Peking-Kalgan line is completed. The Peking-Kalgan line is costing Tls. 7,500,000.

KIUKIANG-NANCHANG RAILWAY.—The construction of the Kiukiang-Nanchang Railway is reported to be progressing very slowly on account of lack of funds. The director general of the road made a trip over the road recently ostensibly to inspect the bridge construction on the different lines under his direction. The officials of Kiangsi have been asked to give their assistance in solving the financial problems involved.

TOKIO RAILWAY EXTENSIONS.—The following additions to the Tokio Tetsuda Kaisha will very probably be completed by the end of the present year:

A line from Minami-jimbo-cho in the Kanda Ward passing by the Koishikawa Arsenal, to Hakusan-maye.

A line from Hongo, Shichome, by Tabsaka, past the front of the Denzu-in Temple in Koishikawa, down Ando-zaka, and thence from the Yodo-gawa to Omagari.

A line from Omagari to Yodo-kawa Bridge.

A line from Shinano-machi in Yotsuya Ward to join the Shinjuku road at Shichome.

PUBLIC AND PORT WORKS, DOCKS, WHARVES, ETC.

HARBOR WORKS AT TUNGCHOW.—The works of the port of Tungchow, up the river, have been completed.

TYTAM PUMPS INSTALLED.—The powerful pumping engines have been installed for the Hongkong waterworks extension.

FORMOSAN HARBOR IMPROVEMENTS.—The Formosan government is preparing plans for the improvement of the harbor of Takao. It is estimated that over a million yen will be expended.

YOKOHAMA GAS WORKS EXTENSION.—The Yokohama city legislature has authorized the issue of bonds to raise the sum of 600,000 yen to be spent in extending the gas works in that city.

HUANGPU RIVER DREDGING.—The East Asiatic Dredging Co. have commenced work on their contract to dredge the Huangpo river. The work on the new breakwater is also progressing.

PORT ARTHUR HARBOR IMPROVEMENTS.—The Japanese are preparing estimates on the dredging of the western anchorage inside the harbor at Port Arthur so as to make it available to large vessels.

TANJONG PAGAR DOCK IMPROVEMENTS.—The dock board has decided to advertise for tenders for a large extension to the docking facilities which it is estimated will cost in the vicinity of $10,000,000 gold.

DREDGING SYNDICATE FORMED.—A company with a capital of a million taels has been formed at Peking for the purpose of securing the contract for the dredging of the waterways between Paoting and Tientsin.

MOJI DOCK CO.—According to the Osaka Jiji, the capital of the proposed Moji dock company is to be seventy million yen of which ten million yen is to be paid in by the French and Belgian syndicate in November.

NANKING IMPROVEMENTS.—The foreign settlement at Nanking, which embraces an area of about one-quarter of a mile square is neatly divided by four wide streets built of concrete and cement, These streets are 32 feet wide.

PROPOSED SHIPYARD AT FUKIEN.—Japanese and Chinese capitalists are said to be interested jointly in the establishment of an extensive shipbuilding plant at Fukien for the purpose of constructing all the vessels for a new Chinese navy.

PUBLIC WORKS IN NORTHREN SAGHALIEN.—The Russian department of commerce has approved the appropriation of over a million rubles to be expended in harbor construction work at Alexandrovsky. It is expected that work will commence early next year.

MANDALAY WATER SUPPLY.—The municipal authorities at Mandalay are endeavoring to solve the problem of water supply. The investigation now on includes the consideration of a reservoir in the hills to supply water by gravitation, deep wells or a scheme to secure the supply from the river.

CANAL TO CONNECT TOKIO AND YOKOHAMA.—Prominent traders of Yokohama propose to make a canal between Yokohama and Tokio for the transport of merchandise. The promoters have established a temporary office at South Maka-dori, and appointed Mr. J. Inouye, a civil engineer, to investigate the route between the two cities.

SAMARANG HARBOR IMPROVEMENTS.—The business men of the port of Samarang, Java, have petitioned the government for an appropriation to be spent in dredging the harbor at that point and increasing the size of the custom house at that point. The harbor has been slowly silting up and owing to neglect has become quite shallow in many places.

PEKING WATER WORKS.—The Chinese government has decided to appropriate the money necessary for the installation of a modern water work system at Peking. The work will be carried on under the direction of Chinese officials and the order for the necessary supplies and machinery will be placed in Germany. This action on the part of the Peking authorities was taken in order to eliminate foreign applications.

SUNGEI PINANG RECLAMATION.—The Public Works Department of the Straits has submitted the following estimates for 1907:

Sungei Pinang, Strengthening River Wall, South, $50,500
Sungei Pinang, Strengthening River Wal, North, 32,500
Sungei Pinang, Rubble Wall and Reclamation, 28,000

It is believed that these works will cost in the neighborhood of $300,000 before completion. The original estimate was $150,000 but the serious subsidence of the filling has almost doubled the cost of the work.

SHIPBUILDING, GENERAL MARINE, SHIPBUILDING, ETC.

TREMONT AND SHAWMUT SOLD.—The Pacific Mail has purchased these two big vessels from the Boston Steamship Co.

OSAKA SHOSEN BUYS CANADIAN PACIFIC VESSELS.—The report of the sale of the Athenian and the Tartar by the Canadian Pacific to the Osaka Shosen is in circulation at Tokio.

KAWASAKI DOCKYARDS BUILDS GUNBOAT.—The Chinese Government has ordered from the Kawasaki Shipbuilding Yard, Kobe, the construction of a gunboat. The cost is said to be *yen* 1,400,000.

YOKOHAMA-CALCUTTA LINE.—The Indo-China S. N. Co. has arranged for a direct steamer service of three modern vessels between Yokohama and Calcutta by way of Kobe, Moji, Hongkong, Singapore and Penang. These steamers will run in conjunction with the Apcar line.

NEW BLUE FUNNEL FREIGHTERS.—The Blue Funnel line will add four new freighters of 10,000 tons gross each to the Liverpool-Victoria route. The vessels, when completed, will be 550 feet long, 58 feet beam and 42.6 feet deep. These vessels will follow the example of the other vessels of the Blue Funnel vessels and call at all the different ports in the Orient as the demand may require.

NEW VESSEL LAUNCHED.—The Kagi Maru built by the Kawasaki Dockyard Co. was successfully launched at Kobe and is a credit to the contractors.

The vessel is a single screw steel spar-deck steamer of 2,500 gross tonnage. It is 300 ft. long, 31 ft. in breadth, and 24 ft. in depth, and is capable of accomplishing 14 4-5 knots. There are 20 first-class cabins, 32 second-class, and there is accommodation for 260 third class passengers.

The Kawasaki Dockyard Co. has the contract for three more vessels of 6000 tons each to be built for the Osaka Shosen Kaisha which will be placed on the American run.

CONCRETE IN STEAMER REPAIRS.—Concrete has come into use in connection with steamship repairs. The Iron Age declares that it was successfully employed to patch up the hull of a steamer. She struck on a jagged rock, and several holes were made in the iron hull of the vessel. The largest one was about 80 feet from the bow, and it measured about 35 feet in each direction, and through this great gap came the rock, projecting for nearly 11 feet into the hold. Those responsible for the salvage operations managed to patch up the breach by means of concrete, and, although leaks developed, the water was pumped out of the hold and the ship was towed 40 miles to a dry dock.

SVENSKA OSTASIATISKA KOMPANIET.—The Belgian Legation in Stockholm report that a company has been formed with a capital of 6,000,000 kroner (about £333,000), to establish a direct service of steamers between Sweden, China, and Japan. An agreement has been concluded between this company, which is entitled "Svenska Ostasiatiska Kompaniet" and the "Ostasia tiske Kompagni" of Copenhagen, according to which each company will run four steamers of from 6,000 to 8,000 tons to China and Japan, starting alternately. The steamers will touch at some European port and at Port Said, Colombo, Penang, Singapore, Hongkong, Shanghai, Vladivostock, Yokohama, Kobe and Moji; the same freight rates will be charged from Gothenburg as from Copenhagen and Hamburg. It is expected that this new service will stimulate the exports from Sweden to the Far East, which are at present estimated at 50,000 tons a year, mainly iron and steel, machinery, cement, matches and paper. The Swedish Diet has voted a subsidy to the "Svenska Ostasiatiska Kompaniet."

MINES, MINERALS, AND THE METAL TRADE

RICH TIN STRIKE.—Kula Kerling in the Ulu Selangor district is the scene of a remarkably rich strike in tin covering an area of over 200 acres.

TIN REFINING IN HONGKONG.—Chinese tin to the amount of 5,000 tons from the mines at Mongtze, Yunnan, passes through the Hongkong refineries, annually.

IPOH TIN MINES.—The Chendai Lode Syndicate operating near Ipoh has developed two large lodes and the syndicate has decided to install a five-head battery.

MANCHURIAN FLOUR MILLS.—A syndicate of five flour mill companies, consisting of the Sungari, Manchiurian and three others, has been concluded at Kharbin.

MINING CONCESSION OF JEHOL.—The Lieutenant Military Governor of Jehol, Ting Chieh, has signed an agreement granting a mining concession in Jehol to a British merchant named Ede.

DREDGES FOR TIN MINING.—An order has been placed by the Malacca Tin Dredging Co. with Messrs. Riley Hargreaves & Co., Singapore, for the construction of a large and powerful suction dredger.

TONGKAH TIN MINES.—The Chersonese Syndicate has decided to proceed to the development of the Taimuang mine, one of the most important of the properties controlled by the syndicate in the western Siamese States.

MURORAN STEEL FOUNDRY RECLAMATION.—Mr. Hashimoto of Sendai has been awarded the contract for the work of reclamation and levelling in connection with the Muroran Steel Foundry. The price submitted was 1,440,000 yen.

THIBETAN MINES.—Several mineral experts have been sent to Tachinlu on the Thibetan border by the Chinese resident at Thibet for the purpose of prospecting that territory and report on the extent of the mineral wealth and the most desirable means for its development.

ANGLO-JAPANESE STEEL WORKS.—The contract between the Hokkaido Colliery S. S. Co. representing Japanese capital and Messrs. Armstrong and the Vickers-Maxim Co. representing British capital for the joint establishment of a large steel works at Hokkaido has been signed.

EASTERN SMELTING CO.—A company having a capital stock of $1,250,000 was recently registered at Penang and has for its purpose the establishing of a smelting plant in the Straits Settlements. The company has asked the F. M. S. government for permission to export ore from the Federated States.

FORMOSAN IRON AND ENGINEERING WOKRS.—The Formosan Iron and Engineering Works, (Ltd.) with a capital of $500,000 gold has been organized in Tokio and will install a large plant in Southern Formosa. The greater part of the stock has been subscribed by the owners of the Formosan sugar mills.

ELECTRIC SMELTER AT HANAU.—A new electric furnace, for determining the fusion of refractory substances, has been constructed at Hanau by W. C. Heraeus. Its essential part is a tube of iridium four-fifths in diameter, and in this temperatures between 1,500 degrees and 2,000 degrees Celsius can be maintained for any desired length of time.

BORNEO COAL.—Development work on the coal deposits of the Breow River, Dutch Borneo, is reported to have established the reputation of the product, and several syndicates are being formed to make further explorations. Expert reports announce that the coal is better than Australian and far superior to Japan coal. Steamship companies in the Far East are greatly interested in the outcome.

OPENING OF A NEW COPPER MINE.—According to a joint memorial from Viceroy Tuan Fang and Governor Jui Liang, permission has been given for the working of a well-known copper mine in the district of Kanchow, in Kianghsi, with a capital of Tls. 500,000, which is to be equally contributed by the Provinces of Kiangsu and Kianghsi. The output will be used for coining and other purposes in the two provinces.

NORTH KYUSHU COLLIERIES.—The output of the Chikuho colliers during the first half of this year amounted to 3,268,713 tons; an increase of 314,063 tons over the quantity during the corresponding period of last year. The monthly returns for this year are as follows:

	Tons
January	544,522
February	428,702
March	575,917
April	557,522
May	579,572
June	582,478

FINANCIAL AND MISCELLANEOUS

CHINESE TONGSAN CEMENT WORKS.—The works are being enlarged and reorganized.

JAPANESE TOBACCO MONOPOLY.—The Japanese Resident in Seoul is making arrangements to extend the tobacco monopoly to Korea.

NIPON BIJUTSU KOGEI KAISHA.—A company has been formed in Japan under this title with a capital of two million yen for the purpose of manufacturing objects of arts.

FORMOSAN EXCHANGE ORGANIZED.—The Tainan Rice Sugar and Stock Exchange has been organized by Japanese merchants at this important port in Formosa with a capital of 300,000 yen.

ONODA CEMENT CO.—This company has decided to increase its capital to yen 1,000,000 and in conjunction with the Mitsui Bussen Kaisha proposes to establish a factory in Manchuria.

ENSUI SUGAR CO.'S LOAN.—The Ensui Sugar Manufacturing Co. at Tainan, Formosa, has received advices from London that a loan of yen 900,000 had been floated for the company.

WATER COMPANY AT SWATOW.—The acting viceroy has given his consent to the petition recently presented to him by the people of Swatow asking permission to establish a Water Company.

JAPAN'S NATIONAL DEBT.—At the end of July, the total amount of Japan's national indebtedness was 2,312,943,462 yen, of which 1,051,188,602 yen are domestic and 1,261,754,860 yen foreign loans.

JAPANESE HEMP MANUFACTURING CO.—The first meeting of the Imperial Hemp Manufacturing Co. was held recently at the Bankers' Club for the purpose of considering amalgamation with the Nippon Seima Co.

JAPANESE POTATOES.—The cultivation of potatoes has been lately in vogue in various prefectures and greatly increasing. An amount of 400,000 yen was exported last year. The crops this year are especially good.

SAPPORO LUMBER CO.—The establishment committee of the Sapporo Lumber Company, of Japan, promoted by Mr. H. Nakazawa and many other persons, with a capital of 6,000,000 yen, has decided to decrease its capital to 1,200,000 yen.

JAPAN CHINA BANK.—A plan is on the tapis to establish a banking corporation under the name of the Japan-China Bank by Messrs. S. Ito, S. Uchimura and others with a capital of 5,000,000 *yen*. The head office is to be established at Kobe, a branch office at Tairen.

VOLCANIC ASHES FOR CEMENT.—A large trade is being done in Japan in volcanic ashes. The ashes, which are used as a substitute for cement, are supplied in great quantities to the Mitsu Bishi and Kawasaki Dockyards, the Sasebo Naval Yards and foundries and factories all over the country.

TAPIOCA MILL IN SIASI.—A company comprised of American capitalists has been organized to develop the islands of the Sisai group off Mindanao. A plantation will be opened up on the island of Lapac and trading stores on each of the different islands. A tapioca mill will also be installed.

RAILS FOR MANCHURIA.—The first consignment of American steel for Manchurian railways was shipped on the British steamer *Askehall* from New York, July 20. Forty steamers have been chartered to carry the total purchase of 40,000 tons of material by the Japanese government and the cost is estimated at $10,000,000.

WEAVING COMPANIES AMALGAMATE.—The negotiations for amalgamating the Nippon Hemp Weaving Company and the Hokkaido Weaving Company have been settled between the Directors on both sides. Extraordinary general meetings of the two companies will be held shortly to obtain the shareholders' approval.

TIMBER BUSINESS IN MANCHURIA.—The negotiations between Japan and China on the timber business in Manchuria are not yet concluded. Japan proposes to include the Tangchiakiang in the area of the concession but the Chinese authorities are against the proposal as that river has no connection with the Yalu.

SIBERIAN BUTTER.—At a recent conference of exporters of Siberian butter, it was stated that for 1907 an export from Siberia to the West of about 3,600,000 pounds of cream butter (approximately sixty million lbs. avoirdupois) was anticipated, or about 1,500,000 pounds (about twenty five million lbs.) more than last year.

NEW SOUTH WALES RUBBER.—The following company has been registered in New South Wales:—
Oceanic Rubber Planting and Trading Company, Limited, capital £10,000 in £20, shares, to acquire the business of A. E. and Charles Harland, planters and traders, in the Banks group, New Hebrides, etc. Office: Sydney.

FLAX MANUFACTURING TRUST.—The amalgamation of the Hokkaido Flax Manufacturing Co. with the Japan Flax Manufacturing Co. has been effected. For this purpose both companies held extraordinary meetings of shareholders at the Geological Association, Kyobashi, and the Banker's Club respectively. The formal contracts were exchanged between both parties.

TOYO CEMENT CO.—The Toyo Cement Company (which was organized with a capital of 10,000,000 yen by amalgamation with the Saga, the Kyushu, the Miye and the Okayama Cement Company which were already conducting business, and also with the Tokoku and the Manshu Cement Companies, which were under organization) has decided to decrease its capital by 5,000,000 yen.

TOYO ZINC COMPANY.—A general meeting of the shareholders of the Toyo Aen Kaisha (zinc company) with 3,000,000 yen capital, which is being promoted by a number of prominent businessmen with Baron Shibusawa as Chairman of the Establishment Committee, will be held on May 13 to obtain approval of the shareholders to wind up the company. The expense incurred for organizing the Company will be borne by the promoters.

SUGAR TRUST IN JAPAN.— As the result of the amalgamation of the Dai Nippon Sugar Refining Company with the Dairi Sugar Refinery, the former Company has decided to float 3,000,000 yen debentures under the guarantee of the First Bank and the Japan Credit Mobilier. The rate of interest will be 7 per cent per annum, the price of issue 97 yen, and the period of redemption seven years after remaining unredeemed for the first three years. The date of issue is still undecided.

DALNY'S POPULATION.—The population of Dalny, according to a police census taken in December, 1906, is given as 23,483. The returns show that there are 1,762 Japanese shops, stores, and firms there, of which about 200 may be classed as firms, and of these probably 50 are large, reliable, and of some prominence. The Chinese shops, stores, and firms are placed at 908, though influential Chinese firms do not exceed one dozen. There are also three British and American firms, branches of houses already established in China and Japan.

DOCKAGE RATES AT TAIREN.—The South Manchurian Railway Co. has fixed the Tairen dockage as follows:

Gross tons.	Within 3 days. Yen.	Per day from 4th day. Yen.
Below 300	500	50
300 to 400	530	55
400 to 500	560	60
500 to 600	590	65
600 to 700	620	70
700 to 800	650	75
800 to 900	680	80
900 to 1,000	710	85
1,000 to 1,100	740	90
1,100 to 1,200	770	95
1,200 to 1,300	800	100
1,300 to 1,400	830	105
1,400 to 1,500	860	110

Every ton above 1,500 tons is charged at the rate of 50 sen for the first three days and five sen per day from the fourth day.

MANCHURIAN DEVELOPMENT.—Consul-General W. D. Straight, of Mukden, writes that the commissioner of customs at Mukden, in a recent report to the Viceroy, calls His Excellency's attention to the fact that in their freight tariff the Japanese railway authorities discriminate against the Chinese port of Newchwang in favor of Dalny. In order to create healthy competition in the carrying trade the commissioner recommends the following:

(1) The imperial railways of north China be extended from Hsinmintun to Fakumen, a distance of 160 li (53 miles), and later continued north to Tsitsihar, the capital of Heilungchiang province, thus affording winter transport to Chingwantao or some other ice-free Chinese port to he hereafter established for the grain produced in the west Liao region. It will otherwise be necessary to store this produce in Fakumen, Tungchiangtzu, or Hsinmintun for shipment to Newchwang when the river opens in the spring, or to haul the grain to Tieling or some other point on the railway, whence it would probably be exported through Dalny.

(2) The Liao River be conserved and that a company be organised to operate light-draft river steamers.

(3) The repair of the cart roads between Fakumen and San Mien Chuan (on the Liao), Tieling and Mafangkou, and Changtu and Tungchiangtzu. Post-roads such as have been constructed in Chihli province are suggested as models, there being no necessity for attempting elaborate road building in this region.

The viceroy has referred the recommendations to the various departments of the provincial administration and requested them to report on the means by which they may best be carried into effect. An official has already been dispatched to Japan to study river conservancy.

RICHARD T. LAFFIN, FORMER GENERAL MANAGER AND VICE-PRESIDENT OF MANILA E. R. R. & L. CO.

Mr. Richard T. Laffin, formerly general manager and second vice-president of the Manila Electric Railroad & Light Co. who resigned from that position recently on account of ill-health and whose departure to the homeland will be sincerely regretted by the business community of Manila, is one of the most experienced of contemporary electric railroad managers. It might be said that he grew up under the influence of the expansion and general utility of electricity as a motive power in solving transportation problems. He studied all the practical phases of the business and is familiar with the duties and responsibilities of each and every official and employee of an electric railway system. It is largely due to this knowledge that he has met with the success that has marked his administration in whatever capacity he served in his interesting career.

Mr. Laffin was born in the state of Maine, May 27, 1862. He was educated in the public schools of his native state and at the age of 18, he moved to Boston where he first became associated with city railway work. He worked his way up the ladder from motor man through the different grades until he was made superintendent of one of the main lines of the consolidated system. It was not long before his splendid executive ability was recognized and in 1901 he accepted the position of general manager of the Worcester (Mass.) Consolidated Street Railroad Co. This position was an important one as the company controlled and operated 160 miles of lines and served seventeen cities. He remained with this company until 1904 when he received an attractive offer to accept the position of general manager and vice-president of the proposed Manila Electric. He arrived in Manila in January 1904, and directed the destinies of the system until his resignation, September 1.

Mr. Laffin is interested in the development of the mineral wealth of the Philippines and is president of the Bua Mining Co. of Benguet. During his service as general manager of the railroad he won the regard and confidence of the public and ever expressed the greatest confidence in the future of the archipelago. He leaves for the United States in January to recuperate his health.

Charles B. Graves, assistant manager of the company who succeeded Mr. Laffin as second vice-president and general manager is a practical electrical engineer of wide experience in railroad construction and electrical installation as well as management of power plants and the direction of railroads. Mr. Graves was born in Massachusetts in 1870 and moved west to Oregon at an early age. He worked in the engineering department of the O. R. & N. Co. where he acquired his first taste of mechanical engineering. Later he took a course in mechanical and electric engineering at Tuft's College and graduated in 1897. From that time until he accepted the position of superintendent of light and power with the Manila company he was engaged in construction and operation of railway systems throughout the United States, Brazil and Canada. From 1899 until his contract with the present company in 1905 he served in the capacity of electrical engineer, assistant manager and construction engineer.

During the absence of Manager Laffin in the United States Mr. Graves was in charge of the system as acting manager and about this time he was promoted to the position of assistant manager from that position to general manager and second vice-president of the company. Mr. Graves' foreign experience makes him familiar with every feature of railroad management and indicates a continuation of the successful administration that has characterized the direction of the company since its organization.

PHILIPPINE RAILWAY CONSTRUCTION

With the improvement of weather conditions, construction on all the different lines in the archipelago during the month received added impetus. The Manila Railway Co., the concessionaires for the Luzon lines, have made marked progress during the month and there is every indication that the company will fulfill the terms of the concessions long before the date required by contract.

The Dagupan-San Fernando de Union line has been completed and steel laid to San Fabian, a distance of twelve and one-half kilometers, most of which is ballasted.

The line from San Fabian to Camp One has been graded for a distance of 12 kilometers. and steel has been laid for ten kilometers. On his trip to Baguio, Secretary Taft proceeded to the end of the steel by special train and from there by automobile to Camp One.

The Florida Blanca line has been graded its entire length, a distance of 25 kilometers, and the steel has been laid for 12 kilometers.

On the Batangas line three kilometers of track have been laid and 50 kilometers graded out of the total of 108 kilometers that constitute this line.

Three kilometers of track have been laid and the total length of the Manila belt line from Santa Mesa to Paco has been graded, a distance of 9.1 kilometers.

On the Antipolo line two additional kilometers of track have been laid between Taytay and the terminus.

The Cavite short line, which will be 32 kilometers in all when completed, has been graded for 25 kilometers and the steel has been laid for about five miles.

The Philippine Railway Co. is meeting with the greatest degree of success in the construction of their lines in Cebu and Panay and the traffic on the 25 mile section since the mixed construction passenger and freight train was made a daily adjunct to the road, has been most encouraging. There are about 60 miles of grading completed in Cebu and 27 miles of track laid. The laying of track will continue at the rate of about five miles a month.

In Panay steel has been laid for five miles and the grading covers a distance of 25 miles.

Work has been progressing favorably on buildings and masonry and the foundations for the bridges and culverts will be completed in time for the steel as it arrives. Some of the latter is expected at the end of this month. In Iloilo concrete piles are being used in preparing the foundations for the buildings. Seven depots are under way in Cebu.

CHINKIANG SECTION SHANGHAI-NANKING RAILROAD OPEN

The construction of the Shanghai-Nanking Railway was extended to Chinkiang and the road thrown open to traffic October 15. This announcement would indicate that the road construction was more rapid than anticipated. The British consul at Chinkiang in his report for 1906 on the probability of railway connection with Shanghai, gave as his opinion that it would not reach that point before 1908. He said:

"The construction of the Shanghai-Nanking Railway is proceeding but will not, for at least two years, be sufficiently completed to show what effect if any the railway will have on the trade of Chinkiang. Opinions are divided but as the railway does not open up any new route, and Chinkiang is well served with waterways, the probability is that the conditions of Chinkiang trade will not be particularly affected."

In the construction of the Chenkiang section there were over a thousand feet of tunneling and many difficult cuts which presented many unexpected difficulties.

It will be remembered that the Shanghai-Soochow-Wusieh sections of the Shanghai-Nanking Railway was opened to traffic in July of last year and the work has progressed over section by section ever since.

This railway is being constructed by the British and Chinese Corporation under a concession from the Peking government. The firm of Messrs. Jardine, Matheson & Co. are in charge of the construction and operation and the Hongkong and Shanghai Banking Corporation is financiering the project.

When completed, this line will tap a fertile area of 45,000 square miles with a population of about 35,000,000.

SAIGON RICE MOVEMENTS

The total export of rice from Saigon from January 1st to September 20th of this year amounted to 14,372,100 piculs of which 1,049,-100 piculs were shipped to the Philippines. The best customer was Hongkong to the amount of over six and one-half million piculs.

CEMENT WORKS AT CANTON

The Canton correspondent of the *China Mail* under date of September 13 says:

"The contracts for the long talked of Cement Works, which the Chinese Government propose to erect at Soo Fong Wei on the Island of Honam just above the salt flats, have been signed, and the work of construction was commenced today by the driving of the first pile.

The sum of about $300,000 is to be expended for buildings and machinery. The iron and steel materials are to be furnished by Messrs. Howarth Erskine and Co. who are general contractors for the buildings. The machinery is to be supplied by Messrs. Carlowitz and Co. The architects and engineers in charge of the construction are Messrs. Purnell and Paget of Shameen, Canton.

The dimensions of the main buildings are as follows: Cement Mill, 42 feet long, by 74 feet wide, and 26 feet high; Clay Drying Plant, 88 feet long, 52 feet wide; Barrel Making Plant, 156 feet long, by 56 feet wide; Drying Plant, 132 feet long, 65 feet wide; Engine House 152 feet by 71 feet wide; Kiln Plant, 163 feet long by 45 feet wide; Boiler House 102 feet long by 71 feet wide; Packing and Storage Room 132 feet long by 105 feet wide; Preliminary Drying Chamber 152 feet long by 83 feet wide; Raw Material Mill and Brick Mash 152 feet long by 83 feet wide.

There are to be two lifts, each 8 feet 9 inches by 19 feet 6 inches, having a height of 64 feet. The foundations are to be completed early in January 1908. The entire plant is supposed to be in working order by the end of 1908.

The capacity is to be 500 barrels a day. The total area of the plant is about 60 acres. The site now presents a busy scene. Temporary offices for the Chinese officials are being erected, and numerous matsheds are already up. Quarters for the cement company's staff are to be put up at once, and quarters for the employees will also be erected adjoining the plant. A number of competent Chinese engineers have been engaged by the Government.

YLANG-YLANG IN LABUAN

Visitors to the recent Agri-Horticultural Show in Kuala Kangsar were much attracted to the government exhibits from Labuan and Brunei. Amongst these, not for competition, were included samples of Essential Oils distilled on Pulo Daat Estate, Labuan, consisting of several varieties of oils of the Citrus family, and a novelty in the shape of a fine sample of Attar of Ylang-Ylang (Ol. mona odorata filipinensis), which is a speciality of this estate, and, as far as we can ascertain, the first instance of its production in a British Colony

This oil was introduced originally into Europe from Manila, in the early sixties of last century but it was not until 1878, when it was first exhibited at Paris, that the oil became widely known.

The owner of Pulo Daat, who is a practical and observant horticulturist and was many years resident in the Philippines, introduced the tree to the Colony, where, during the last six years, he has gradually laid out a large plantation now just commencing to flower. The oil sent to Kuala Kangsar was part of the first distilled. Only small quantities of oil will be made during the present year; next year, distillation will be carried on extensively, and the oil will be placed on the market.

It is understood that it is the intention to form Pulo Daat into a Company and plant the reserve land with Para rubber, of which a few acres have been already planted, some trees being six years old and all are thriving well. Besides Ylang-Ylang, there are some 20,000 cocoanut trees on the island, and, rather strange for these parts, a flock of sheep thoroughly acclimatised and breeding prolifically.—*Straits Budget.*

FAR EASTERN ENGINEERING, CONSTRUCTION, COMMERCIAL AND FINANCIAL NEWS

ELECTRIC RAILWAYS, LIGHTING, POWER, TELEGRAPH LINES, ETC.,

SIAM ELECTRIC COMPANIES COMBINE.—The Siam Electricity Co. has taken over the controlling interest in the Siamese Tramway Co.

OSAKA-KOBE ELECTRIC R.R.—This company has decided to add three million yen to its present capital with a view to extending its system.

PERTH CITY INSTALS ELECTRIC LIGHTS.—Perth, West Australia, has installed a complete electric light system under the direction of the city council.

TIENTSIN ELECTRIC TRAMWAY EXTENSION.—The extension into the Japanese concession at Tientsin was officially opened to traffic on September 18.

NEW JAPANESE WIRELESS.—Wireless telegraphy on a new system recently perfected at the Yokosuka naval arsenal is being tried between Yaidzu, Shizuoka, and Adzumayama, near Yokosuka.

WATER POWER ELECTRIC GENERATING PLANT AT KATSURAGAWA.—This plant of the Tokio Electric Light Co., has been partly installed and is being utilized to supply power and light to the capital.

DUTCH INDIAN WIRELESS.—The Dutch government has given sanction for the establishment of 38 wireless telegraph stations in the Dutch Indies and this work will be taken up by a private company.

ADELAIDE TRAMWAYS.—There is a row on between the ratepayers and the tramway trust over the proposed route of the new system. The trust has surveyed routes on the residential streets only against which the ratepayers protest.

GEELONG ELECTRIC TRAMWAYS.—The town council of Geelong, Victoria, has accepted the proposals of the Electric Light and Traction Co. to instal a complete electric tramway system in that city, says the Australian Hardware and Machinery.

ELECTRIC DESTRUCTOR FOR GARBAGE.—The municipality of Balmain, New South Wales, has concluded negotiations for the supply of electric light and power as well as the providing of a garbage destructor with Messrs. Kennick & Co., contractors.

PENANG'S CHEAP ELECTRIC SERVICE.—The Penang municipality has made a trade rate for the supply of electricity on a three year contract of 12 cents (Straits dollar) on a day load of five hours daily. The Singapore price is 25 cents with a 25% rebate.

WALLAROO LIGHTING SERVICE.—The Wallaroo and Moonta Mining & Smelting Co. has entered into a contract with the town council of Wallaroo, South Anstralia, to replace the present two wire service with a three wire service, says the *Australian Hardware & Machinery*.

STEAM TURBINE GENERATOR.—The municipal electricity bureau at Shanghai is trying out the first steam turbine for the generating of electricity. The turbine speeds 1500 revolutions a minute and develops 1,350 H. P. It was built by Messrs. Parsons & Co. of Newcastle-on-Tyne.

JAPANESE CABLE AND TELEPHONE SERVICE.—Tokio and Hokkaido will be connected by telephone within the next few years. According to the official plan, the line connecting Tokio and Sendia willl be completed this year and from Sendai to Aomori early next year. The cable between Hakodate and Aomori was completed in September.

PEKING ELECTRIC LIGHT AND RAILWAY.—The Peking Electric Co. has received a franchise from the board of Home Affairs to construct tramways in the Chinese capital. The capital of one million taels has been subscribed by Chinese. Construction will commence January 1. The doyen of the diplomatic corps has also given his consent to the installation of electric lights on Legation street.

TOKIO'S NEW ELECTRIC REGULATION.—An ordinance has been passed in Tokio providing no building may be provided with electricity from more than one power house at one time. The ordinance reads: "In the same house or building it is forbidden to be supplied with electricity from two or more different electricity factories unless special permission is granted by the prefectural governor."

RAILWAYS AND RAILWAY SUPPLIES.

HANGCHOW RAILWAY.—The Kiangkan-Hushueh Railway was formally opened to general traffic on September 22.

EAST INDIAN RAILWAY.—It is the purpose of this company to put five steam rail motors in operation in a short time.

TOKIO CENTRAL DEPOT.—The construction of the central railway station in Tokyo will be started within the present fiscal year.

AMUR RAILROAD.—The Russian government has agreed to subscribe 2,500,000 roubles towards the construction of the proposed Amur railroad.

KIRIN-CHANGCHUN RAILWAY.—The survey of the route of this proposed line was completed last month and the plans are in the hands of experts for approval.

YUNNAN RAILWAY TROUBLES.—Peking has decided that the railways in Yunnan shall be built and operated by Chinese exclusively and the French have filed a protest.

DAMAGE TO JAPAN'S RAILWAY BY FLOOD.—It is estimated that the government railways in Japan suffer to the extent in value of two million yen during the recent floods.

BURMA RAILWAY EXTENSION.—As the result of the limited appropriation for the work the construction on the Burma railway extensions has been suspended almost in its entirety.

MANCHURIAN RAILWAY AS STEVEDORE.—On October 1st new wharf regulations went into effect at Tairen which provides that all the cargo landed at that port will be handled by the South Manchurian Railway.

TOKIO RAILWAY.—Official sanction has not been secured by the Tokio Railway Co. for the carrying of freight on its lines and it has revised its proposed program so as to carry mail matter and parcels only for the present.

MANCHURIAN RAILWAYS.—A joint time table and revised tariff went into effect on the South Manchurian and the Chinese Eastern Railways on October 10. This will greatly facilitate passenger and other traffic on the two roads.

STEEL RAILS FOR VICTORIA.—The United States Steel Products Co. has secured the contract for the delivery to the Victoria government of 8485 tons of 80 and 100 pound rails at £6 17s a ton and 518 ton of fish plates at £8 18s 9d a ton.

REDEMPTION OF PEKING-HANKOW RAILWAY.—The ministry of posts and communications at Peking is busy on a scheme to redeem this road. It is understood that the money will be forthcoming from the leading officials and merchants.

NATIONALIZATION OF CHINESE RAILWAYS.—The board of communications at Peking has decided to place all the railroads in China under government control and is making enquiries in other countries as to the best methods to accomplish this end.

PAHANG RAILWAY.—The construction of the railroad from Gemas in Negri Sembilan to Kuala Semantan in Pahang, which has been authorized, will be commenced at once. It is also reported that a railway will be constructed from Kuala Gemis on the Johore border to Port Dickson.

FOUNDRY FOR CHINESE RAILWAYS.—It is reported that Viceroy Chan Chihtung is promoting the establishing of an extensive foundry and iron works at Hankow for the benefit of the Canton-Hankow Hunan and Szechun railways. The capital of the proposed company is placed at 40,000,000 taels.

MANILA RAILWAY CO.—The traffic receipts of the Manila Railway for the week ending August 24 were $26,112 (including extensions, 207 miles open), against $24,983 (main line only, 127 miles open) for the corresponding week of 1906; making an aggregate of $1,560,965, against $1,148,923 for last year.

PEKING RAILWAY SCHOOL.—The board of communications at Peking intends to establish a railway school at the Chinese capital for the purpose of training young Chinese for the various provinces. A telephone school has already been established and telegraph, shipping and post schools will soon follow.

SAKAI RAILWAY CO.—Official charter was given, under date of September 16, to the Sakai Railway Company, with 1,800,000 yen capital, to construct a railway between Yokohama and Dzushi, a distance of 3 miles 78 chains. This Company is promoted by Mr. M. Suyenobu and eight other persons.

INDIAN RAILWAYS.—A new railway 72.34 miles in length between Rangya on the Bengal state railway and Tezpur in Eastern Bengal has been surveyed. The gauge will be 3 ft. 3½ in. The Sambulpur Khurda Railway in Bengal when completed to be 190 miles in length has been surveyed. The guage proposed is 5ft. 6 in.

TIENTSIN-CHINKIANG RAILWAY.—The British Syndicate which has agreed to lend the funds for the construction of the proposed Tientsin Chinkiang Railway has notified the Chinese authorities that the Railway Company will be expected to make an annual repayment of four million taels on account of interest and instalment on the loan.

ELECTRIC RATE WAR AT TOKIO.—There is keen competition on electric lighting rates between the Tokio Electric Light Co. and the Tokio Railway Co. The former has reduced its rates from 30 sen a kilw. to 20 sen with radical discounts on large orders and announces that it is willing to give a whole night service for 1.40 yen as a substitute service for a half-night at 1.20 yen.

CHINESE RAILWAY CONCESSION.—A syndicate of the gentry of the Provinces of Shensi and Kansuh has asked the Yu-chuen-pu (Board of Communication) to grant them a railway concession from Taiyuan-fu in Shansi via Pingyang-fu to Hsian-fu in Shensi and then to Lanchou-fu in Kansuh. It is reported that this has been caused by steps, which Viceroy Shen Yun of Shen-Kan is said to have taken to secure a similar concession for a Belgian Syndicate.—*P. & T. Times.*

RUSSIAN RAILWAYS.—The Russian Minister of Railways has submitted to the Council of Ministers a scheme or improvements in the state railways which it is proposed to carry out from 1908 to 1912. The total estimated expense is $458,000,000, divided among fine annual budgets. The principal items are doubling tracks, $36,000,000; bridges and embankments, $30,000,000; stations, $59,500,000; workshops, $52,000,000; retailing, $30,000,000, and rolling stock, $151,000,000.

KOREAN RAILWAYS.—The Railway Bureau of the Korean Residency-General on Sept. 20, carried through transportation of passengers and freight to and from Antung, Manchuria. Through tickets are issued between Antung and any point on the Korean railway system, and a ferry boat plies between Antung and New Wiju, connecting with every train leaving or arriving at the latter place. Goods are passed through the Korean Customs at New Wiju by the Railway Bureau, free of charge, which means a saving to shippers of much trouble and annoyance.

CHINESE RAILWAYS PROPOSED.—The native gentry and others of Kuanghsi says the P. & T. Times have obtained permission from the Peking government to build railways in their own Province as without any foreign assistance as follows:

(1) a line from Wuchow to Kuei Hsien.

(2) from Kuei Hsien to Nanning, for future extensing to Kuangtung.

The company is to have a capital of Tls. 5,000,000.

It is believed that this step of the natives is to check the advance of the French in Kuanghsi.

FUHKIEN RAILWAY.—A despatch from Amoy states that the Fuhkien Railway Company has ordered two locomotives for the above named railway. One of them has been ordered through the Mitsui Bussan Kaisha in Amoy. Each is to cost 18,000 dollars.

The railway sleepers and rails were ordered through the Mitsui Bussan Kaisha, and about 40,000 sleepers will be delivered in Amoy in October at $1.15 per piece. The rails were ordered from Hanyang Iron Works through the Mitsui Bussan Kaisha. Tls. 50,000 have been sent to the Hanyang Iron Works in Hankow as a deposit against order.—*Shanghai Times.*

KOBE BELT LINE.—The branch railway line, forming a connection of the land and marine transport at Kobe was completed last month, and the line opened to traffic. The railway is only a little over two miles long, but it cost more than 1,200,000 *yen*. It branches off from the Tokaido Railway at Nada station, newly established between Sumiyoshi and Sannomiya, and reaches Onohama station through the Onohama suburb of Kobe. Construction required four years for completion, commencing in July, 1903. This railway is the forerunner of the Kobe harbor works, the construction of which will shortly be commenced.

THE SHUNTEH-FU-CHINAN-FU RAILWAY PROJECT.—The proposed railway line from Shunteh-fu, Chihli, to Chinan-fu, Shantung, has been prospected by Taotai Chu Nian-tien, in company with a railway expert, the work being carried out under instruction from H. E. Yuan Shih-kai, the Viceroy of Chihli.

It is reported that the work of prospecting for this railway has been completed. It will be 480 li in length, only 140 of which will be within the borders of Chihli. The cost of building it will be about five million taels Reports, plans and specifications relating to the project have been sent to the Board of Posts and Communications by H. E. the Viceroy Yuan Shih-kai.—*Shanghai Times.*

PROPOSED RAILWAYS IN TASMANIA.—The construction of a line between Burnie and Flowerdale is not considered advisable by the commissioners to whom Parliament referred the question, says the *Australian Hardware and Machinery*. The small population to be served and competition from sea carriage are the principal reasons assigned for the adverse report. Another proposed railway between Scottsdale and Branxholm is favoured by the commissioners. This line, which is 25 miles in length and of the usual 3-ft. 6.-in gauge, is estimated to cost £154,000. A bill is now before Parliament authorising the Tasmanian Investment and Trust Co. Ltd. to put down and run a line from the Derwent Valley railway to the western mining fields of Tasmania. The measure is entitled "the Great Western Railway and Electric Power Act," but either steam engines, electric motors, or other motive power may be employed. The distance to be covered is not stated, but the time to be occupied in construction limited to seven years from January 1, 1908.

PUBLIC AND PORT WORKS, DOCKS, WHARVES, ETC.

KOBE HARBOR IMPROVEMENTS.—The ceremony inaugurating the construction of the Kobe Harbor Works took place September 16.

KUANTAN HARBOR IMPROVEMENT.—The dredger from the Tanjong Pagar has been at work for about three months at Kuala Kuantan preparing the way for the government engineers to prepare definite plans and estimates for the new harbor contemplated.

KYOTO PUBLIC IMPROVEMENTS.—The municipality of Kyoto is experiencing some difficulty in floating the six per cent. loan of nine million yen repayable in 30 years for the purpose of constructing electric railways, waterworks and sewer systems. It is not believed that the bonds are sufficiently attractive to interest the banks at that rate of interest.

PASIG RIVER WALL CONSTRUCTION.—Plans are being prepared for the construction of the balance of the river wall east of the bridge of Spain in Manila. The government has expended over half a million pesos on that part of the river lying between the bridge of Spain and the river's mouth. The Atlantic Gulf & Pacific Co. are the contractors for the principal part of the work. All the filling will be completed as soon as the sewer system is installed.

OPENING OF THE WUSIEH-CHINKIANG SECTION OF THE SHANGHAI-NANKING RAILWAY

The trial trip from Shanghai to Chinkiang on the Shanghai-Nanking Railroad was made on October 2 and the new section between Wusieh and Chinkiang was thrown open to traffic, October 15. The road is now in operation for about 150 miles and this distance was covered on the initial trip in a little less than four hours running time or an average of thirty-seven and one-half miles an hour. The highest rate of speed made during the trip was 59 miles an hour. A special train provided with an observation car left Shanghai at 6:50 a.m., arrived at Chinkiang at 11:43 a.m. The officials who took the trip were Messrs. A. H. Collinson, M. I. C. E., Engineer-in Chief; H. P. Winslow, Deputy Traffic Manager; E. J. Dunston, Locomotive Superintendent, and the representatives of the press. In describing the trip to Wusieh the representative of the North China Daily News states that the big silk center was reached in two hours and one minute. The distance between these two points is 80 miles. The ride between Wusieh and Changchow, a distance of 24 miles, was made in 26 minutes and it was on this stretch that the 59 miles an hour record time was made. Tanyang was reached at 10:27 and the train started out on the last stretch to Chinkiang at 10:35 reaching the end of the twenty mile section at 11:43. The following comments on the road are taken from the report of the initial trip by the representative of the North China Daily News:

"All the stations on the line are substantially built and ample accommodation is provided, so that large traffic, passenger and freight, can be dealt with. The Soochow station has a particularly fine set of buildings, a first-class refreshment room, equipped to meet the demands of the most fastidious passenger, being a new feature calculated to be much appreciated by travellers.

"At Wusieh a large traffic is already being done in tribute rice and silk cocoons. Since the railway has been opened to Wusieh it has been found necessary to quadruple the godown accommodation to enable the company to deal with the rice and silk cocoon freight.

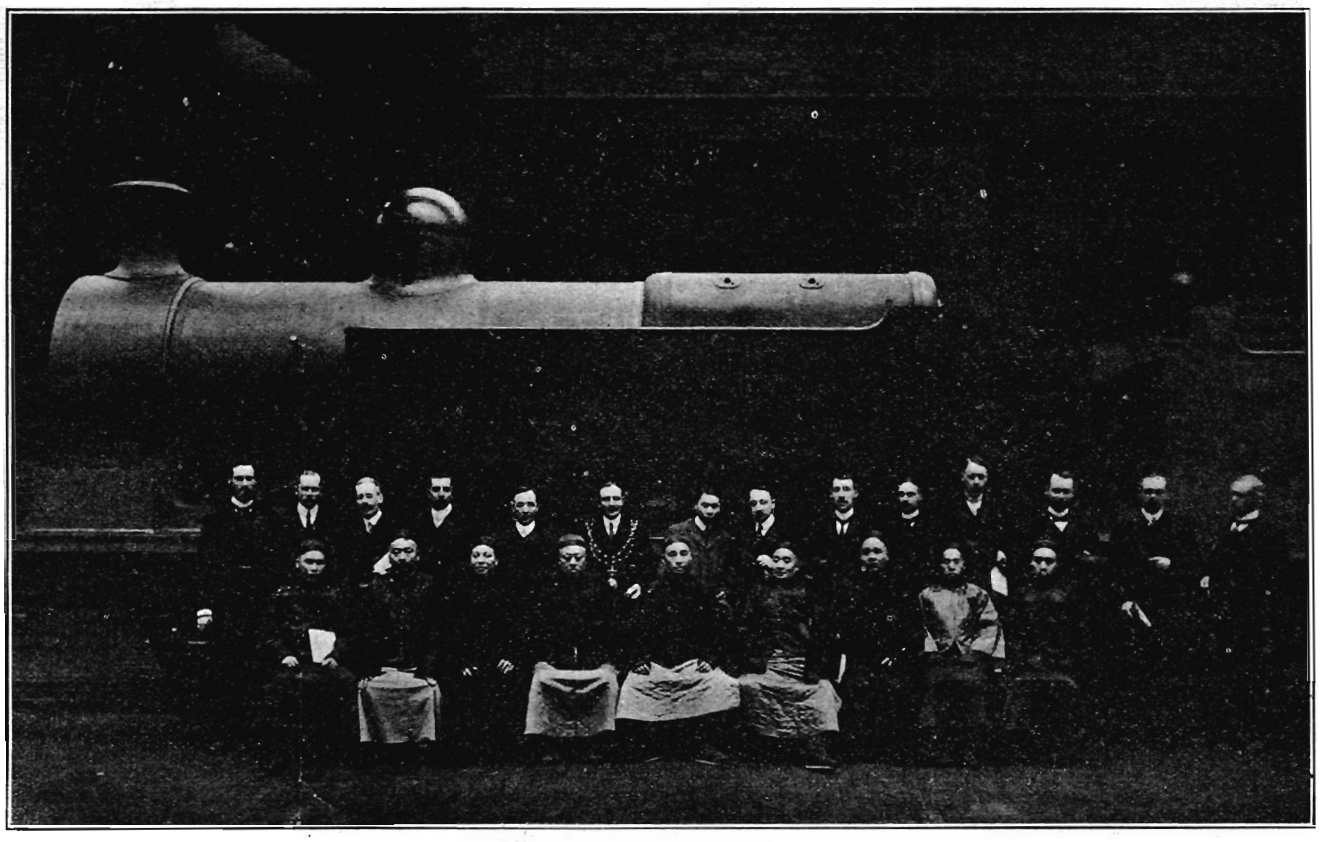
"Changchow is a great trading centre and considerable traffic in live-stock is done. Tanyang station has not been opened yet, but a heavy traffic in cattle is anticipated, as it is expected that Tanyang will ultimately become a large centre for the reception of cattle for the Shanghai market.

"Chinkiang, situated on the Yangtze at a point where the Grand Canal enters the river, will provide large numbers of passengers and considerable freight. Owing to the tunnel under Fort Hill being still incomplete it has been arranged to open a temporary station at the east end of the tunnel, but the permanent station, which is at the west end of the tunnel, is now nearly complete. The company has built a branch line down to a jetty which stretches for a considerable distance out into the river and passengers and goods landed from steamers and boats at this jetty will, therefore, be rapidly dispatched to their destination.

"From Chinkiang to Nanking is forty-four miles and at present over twenty miles of the permanent way has been laid, so that by the time Fort Hill tunnel is built the railroad from Shanghai to Nanking will be almost ready for traffic throughout its length. On Wednesday afternoon I paid a visit to the tunnel, one of the most important works on the Chinkiang Division, and found that the engineers had worked through the hill from west to east except for a distance of some 180-190 feet. The tunnel will be about a third of a mile in length and it is being constructed to take a double line, although for the present only a single track will be laid. The engineers are making their way through very hard sandstone rock, the roof being arched out first and lined with brickwork in cement, while in some places it has been found necessary to line the side walls. Under the invert of the tunnel a large culvert is being built in red brick and concrete. Hundreds of men are engaged in this part of the construction works, those laboring in the tunnel doing so by the aid of electric light. It is expected that the tunnel will be finished by the end of the present year and it is probable that during February 1908 it will be possible to run trains through from Shanghai to Nanking."

The locomotives on this road were manufactured and supplied by the well-known firm of Messrs. Robert Stephenson & Co., of Darlington, England. They are described as Four-Coupled Passenger engines, ten of which are now in use on the road. They are fitted with brass tubes, copper fire boxes and Westinghouse brakes. The following are the dimensions of the locomotives: gauge of railway 4′:8″; cylinders 18′ diameter, 26′ stroke; coupled wheels 6′:7″ diameter; fixed wheel base 8′:3″: total wheels 25′:2″; heating surface-tubes 1467.39 square feet, firebox, 162.61 square feet, total, 1670 square feet; Grate area 28 square feet; working pressure-180 pounds to the square inch; tractive force-17,250 pounds; weight of coupled wheels 37 tons, 2 cwts., weight on front bogie 19 tons 11 cwts.; weight on hind bogie 19 tons, 11 cwts.; total weight in working order 56 tons, 13 cwts. The tender wheels are 3′:6″ in diameter and the fixed wheel base is 13′:0″ with a total of 13′; tank capacity-3500 gallons; fuel capacity 7 tons; weight in working 41 tons, 14 cwts. making a total weight of engine and tender 98 tons 7 cwts.

The following are the executive engineers engaged on the line:—Mr. A. C. Clear, Soochow Division; Mr. B. T. B. Boothby, Wusieh to Chinkiang Division; Mr. J. G. Barkley, Chihkiang to Nanking Division.



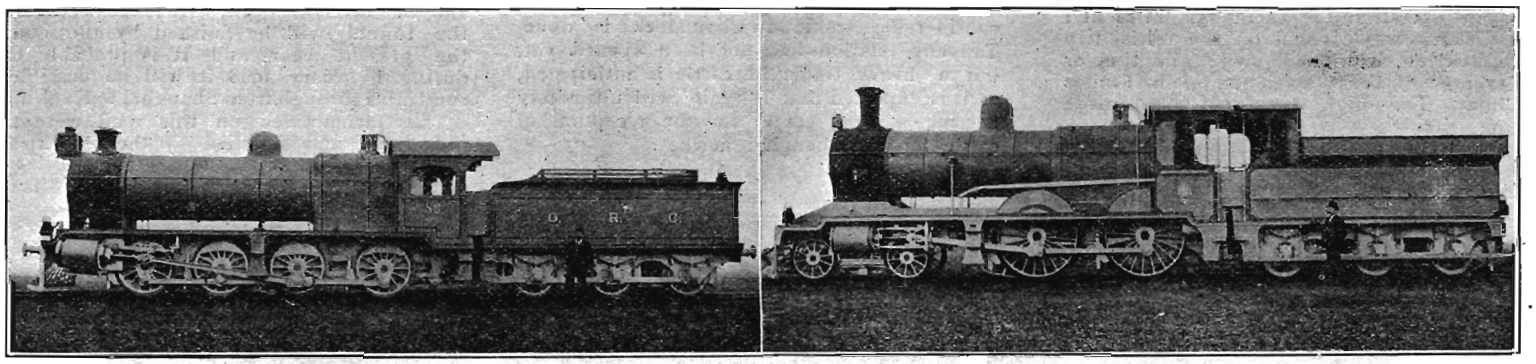
VISIT OF THE CHINESE COMMISSIONERS TO MESSRS. ROBERT STEPHENSON'S LOCOMOTIVE WORKS AT DARLINGTON

CANTON-HANKOW RAILWAY

An important meeting of the directors of the Canton-Hankow Railway was held at Canton, October 16, at which a resolution was adopted providing for monthly reports on the progress of the work of construction and operation from the different departments in future in order to keep the shareholders fully informed and at the same time allay the disaffection occasioned by the spread of false rumors. The Hongkong Telegraph's correspondent writes:

The question was discussed as to how the different statements relating to progress reports and financial statements for publication should be made. It was decided that, commencing from the 8th moon, a monthly report of the conditions of surveying and building, purchasing of land, financial standing and the running of trains of the previous month should be published. The object of this publication is explained as follows: Since the issue of the Imperial Edict ordering the opening of the work of the Canton-Hankow Railway last year, all the shareholders' attention had been directed to the surveying and building work, financial administration, purchasing of land and materials, machinery, godowns, buildings and all the other assets and cash accounts of the Company. The first section of the main line was opened to traffic this summer and the head-station was established. More than half of the rails of the second section has been laid and that will soon be opened to traffic. The foundation for the third and fourth sections has been nearly completed, while the work for the fifth, sixth and seventh sections is being carried on. The whole length of those seven sections, extending from Canton to the district of Ying Tak measures over 200 *li* and occupies one-third of the main line to be built by this company whose monthly balance sheet and report of this year deal too generally with the abovementioned details. The reason that so many differences have arisen in the past is because the large and small shareholders are alike kept in ignorance of the true nature of the company's doings, therefore they were liable to believe all sorts of false rumors. It is desirable that such errors should be remedied. But the general suspicions cannot be dissipated unless a true account of all the operations of the company is published once every month. It must be done by filling in the different returns of the various departments together with a general report on the whole. Shareholders can easily refer to these statements when they want to find out anything and ascertain the particulars as though they had been in person to witness the operations. Then they will entertain no more suspicions and no doubt will exist amongst them. It is not only that the character of the officers will not be tarnished by suspicions of dishonesty, but every one will be willing to pay up the 2nd and 3rd calls on their shares It is unquestionably our duty to allay all difficulty arising from disagreements between officers and shareholders who lay a great responsibility on our shoulders, and we should therefore conduct all the business of the company in the most straightforward and conscientious manner to the satisfaction of everybody concerned. We prepare a general return for each item as follows:—

(a.) Engineering department: the work of each section, the condition of every godown or workshop during the month.



LOCOMOTIVES IN USE ON THE SHANGHAI-NANKING R. R. AND THE OTTOMAN R. R. BETWEEN SMYRNA AND AIDIN: BUILT BY MESSRS. ROBERT STEPHENSON & CO., LTD., OF DARLINGTON

(b.) Land purchasing department: the condition of every piece of land purchased during the month.

(c.) Financial department: every detail of receipt and payment, together with all cash transactions done within the month.

(d.) Railway trains department: daily receipts of 1st, 2nd, and 3rd class passengers, their number, freight, number of cars running each time.

The 8th moon has now passed and it is the duty of the directors to ask the President or the Chief-manager to publish the report for that month according to the returns together with remarks and minute explanations thereon wherever required. The 107th clause of the Commercial Ordinance states that the board of directors must, at the end of every year, direct the president or general manager to make an annual report and balance sheet of the accounts of a company. This must be done at least once in every year. When the Ordinance says "at least once" naturally it carries the meaning that more than once will be more appreciated, or in other words, the oftener the better. Besides, practice makes every work perfect. Monthly reports are being published by other companies and these returns are intended to make every item most explicit and easy for reference.

Those accounts that have to be audited must be handed over by the president, vice-president, or general manager to the auditors; and, when they are found to be correct, are to be published through the board of directors for the benefit of all shareholders at home and abroad. We, the directors, are representing the shareholders who rely on us for information. The chairman of committee should read the annual report before the shareholders present in accordance with the 48th clause of the Commercial Ordinance. Now we are going to publish a monthly report through the vernacular daily-papers which will prove that the officers are trustworthy and the distrust entertained by shareholders be thus allayed. Please decide whether these statements are properly made out, and, if so, they are to be handed to the chief manager who will be directed to have them filled by the different departments with particulars of their actions during the 8th moon. Please also decide whether there is anything required to be done at present and the manner in which it should be done.

Resolutions were passed (1) that all the passenger-tickets must be stamped with the seal of the manner of trains and are to be counter-stamped with that of the Financial Manager, who will report the number of tickets of each class thus stamped to the president every time. The manager of trains and the financial manager must each keep a book entering clearly the numbers of these tickets so as to be easily examined by the auditors; and (2) that the returns for the surveying and engineering department must be filled in and a report submitted and published every month. The distances of the different sections of the main-line vary, therefore the report of each section must be published the day it is presented to the head-office. The returns for the landpurchasing department, and the balance-sheet of the financial department together with all the cash investments made by the company, must be published once every month while the statement of receipts of each section will be published every ten days.

All these returns are suitable for present use and they are to be handed to the chief-manager through the vice-president.

FEDERATED MALAY STATES RAILWAYS

The Federated Malay States Railways, owned by Government, included 396 miles 32 chains of open lines on January 1, 1906, and 63⅓ miles under construction (since completed). The Railway Administration are constructing a line (the Johore State Railway) for the Johore Government, from Gemas to Johore Baru, a distance of 120½ miles. No other lines begun or authorised but trial surveys for railways in the State of Pahang have been made and surveys completed for light railways (Tapah Road to Temah and Ipoh to Tronoh), in Perak.

The Sungei Ujong (Malay Peninsula) Railway Co., Ltd., Dashwood House, of New Broad Street, London, E. C., own the Sungei Ujong Railway, whose length is 24 miles 67 chains.

Straits Settlements.

The Singapore Kranji Railway, owned by the Straits Settlements Government, comprised 15 miles of open line and 1 mile ferry at date of despatch. Four miles 69 chains were then under construction and are probably now open also. No further construction was authorised. Other railways in the Colony are branches of the before-mentioned F. M. S. Government Railways.

Straits Settlements (Labuan).

The Labuan Coalfields Co., Ltd. (A. Vanscolina, Sec.), 28, Fenchurch Street, London, E. C., own a railway in Labuan 10 miles in length (or including sidings, about 16 miles), principally used for the transport of coal from Chin coal mines to Victoria Harbour. —*Commercial Intelligence.*

CORRECTION IN ADVERTISEMENT

Through a misplacement of the wording of the advertisement of The Hotel Pines at Baguio, it was made to appear that the hotel owned polo grounds and golf links. This reference was originally intended to apply to the attractions of Baguio instead of the hotel. The correction is made at the request of the modest management of this delightful home in the hills, the many attractions of which cannot possibly be properly presented by the most experienced advertising expert.

FAR EASTERN ENGINEERING, CONSTRUCTION, COMMERCIAL AND FINANCIAL NEWS

ELECTRIC RAILWAYS, LIGHTING, POWER, ETC.

PERAK MOTOR SERVICE.—A company has been formed for the purpose of establishing a motor car service between Kuala Kangsar and Grit, Upper Perak.

ELECTRIC LOCOMOTIVE IN NEW ZEALAND.—In the gold mines of New Zealand the electric locomotive is being used both underground and for surface work.

OSAKA-KOBE ELECTRIC LOAN.—This company is reported to have arranged a loan of one million yen with American capitalists at a rate less than 7%.

LAHORE ELECTRIC SYSTEM.—The Punjab government has granted a license to the Punjab Power Association to supply electricity to the city and the suburbs of Lahore.

YOKOHAMA ELECTRIC EXTENSION.—Official permission was given on October 7 to the Yokohama Electric Tramway Company to extend the present line to Takigashira, via Hagoromocho, Hisakatacho and Kumoicho.

ELECTRICIZING JAPANESE LINES.—The electric lines between Shimsashi and Uyeno and between Akabane and Ikebukuro are to be electricized. The work of erecting the trolley wires will be begun at once.

MANCHURIAN TELEGRAPHS.—The Imperial Chinese Administration has extended the telegraph lines in Manchuria to such an extent that all the principal town are in communication with each other.

YUET HAN RAILWAY TELEGRAPH.—It has been decided by the engineer-in-chief of the Canton-Hankow Railway to install a telegraph service along the route of the Yuet Han Railway instead of using the telephone system proposed.

GAN-HAN ELECTRIC RAILWAY.—The Gan-Han Electric Railway to be constructed between Taira, Iwaki province, and Koriyama, Iwashiro province, via Miharu, has been sanctioned by the Government. The total mileage covers forty-five miles and the capital is 1,450,000 *yen*.

ELECTRIC SUPPLIES FOR CEYLON.—The comptroller of government stores, Colombo, Ceylon, has invited manufacturers to send in their respective catalogues of electrical supplies. It is the purpose of the Ceylon government to install a number of plants for power light, etc.

VLADIVOSTOK ELECTRIC TRAMWAY.—The municipal council of the city of Vladivostok has authorized the expenditure of 540,000 roubles for the construction of an electric tramway throughout the municipality. Work on the improvement of the streets, as a preparatory measure, has been commenced.

ELECTRIC LIGHTING FOR RANGOON.—Street lighting with oil is carried out by contract as in previous years. The Contractor last year was paid Rs. 41,923, during the year, as against Rs. 40,948, in 1905-06. Progress is being made by the Electric Tramway and Supply Company in preparation for lighting the streets by electricity and it is expected that a start will be made in this direction at the close of 1907 or early in 1908.

GREAT NORTHERN TELEGRAPH CO. TO SELL TO JAPAN.—The Japanese government is negotiating with the representatives of the Great Northern Telegraph Co. for the purchase of the lines of the company extending from Kyushu via Tsushima to Fusan, Korea, 42 nautical miles; from Nagasaki to Vladivostock, 740 nautical miles; and from Nagasaki to Shanghai, 417 nautical miles. It is expected that when the Nippon government takes charge that the rates of transmission will be greatly reduced.

WIRELESS IN MINDANAO.—During the last fiscal year, according to the report of General Bliss, department commander, a system of wireless was installed in Mindanao and Jolo and satisfactory communication established thereby between the headquarters at Zamboanga and the station at Jolo. He has recommended that another station be established at Malabang or Parang Parang, preferably the latter owing to its altitude. He also recommended that provision should be made to keep the Zamboanga station in touch with Manila by wireless independent of the present system of telegraph lines and cables.

RAILWAYS AND RAILWAY SUPPLIES

INDIAN RAILWAY SUPPLIES.—Tenders were opened by the Indian Railway Board, November 3, for the supply of 50,000 sleepers for the Oudh and Rohilkhand Railway.

KIAOCHOW RAILWAY.—The Chinese minister at Berlin has registered a protest at Peking against the extension of the Kiaochow-Chinan Railway by Germany.

TONGSHAN LOCOMOTIVES.—The new locomotive for the Peking Kalgan line was turned over to the company by the Tongshan Locomotive Works last month.

DOUBLING SOUTH MANCHURIAN RAILWAY.—The doubling of the South Manchurian Railway will be completed by the first of the year, if the material ordered arrives from America as expected.

YOKOHAMA-HACHOJI RAILWAY.—It is expected that the Yokohama Railway Co. will have the rails laid on the Yokohama-Hachioji line by the end of the year and that it will be open for traffic some time in January.

INDIAN RAILWAY CLEARING HOUSE.—*Railways* announces that the subject of a clearing house for Indian railways will be discussed at the Railways Conference to be held at Simla shortly.

CANTON HANKOW REDEMPTION.—The annual instalment of the redemption of the Canton-Hankow Railway from the American Syndicate, amounting to $500,000 has been remitted by the company.

OVERTON-LAKE LANAO RAILWAY.—General Bliss, commanding the Department of Mindanao, has again recommended the construction of a narrow gauge railway between Camp Overton and Lake Lanao for the transportation of troops and supplies.

CANTON-MACAO RAILWAY.—It is reported that the agreement between the Chinese and Portuguese governments in regard to the construction of the Canton-Macao road has been cancelled and that a new proposition will be submitted in a short time.

DAMAGE TO JAPANESE RAILWAYS.—Damage sustained by the various railways from floods in August amounted to:—Chuo, *yen* 250,000; Shin-yetsu, *yen* 50,000, Tokaido, *yen* 291,500;Gan-yetsu, *yen* 130,000; Nippon, *yen* 45,000; and Bankaku and Maidzuru, *yen* 42,000.

CANTON-KOWLOON RAILWAY SURVEY COMPLETED.—A report from Canton announces that the survey of the Chinese section of the Canton-Kowloon Railway route has been surveyed and the report of the engineers accepted.

AMERICAN LOCOMOTIVES FOR JAPAN.—Among the rolling stock ordered from the United States by the Japanese government, 26 locomotives are for the Hokkaido Railway; 24 of the eight wheel type for the other lines and three Moguls for the Kangsu line.

TIMBER FOR PHILIPPINE RAILWAYS FROM MINDANAO.—The *Mindanao Herald* announces that besides large quantities of piles and bridge timbers, more than 10,000 ties have been shipped out of the districts of Zamboanga and Cotobato for Philippine railway construction.

LARGE RAILWAY PROJECT FOR KOREA.—Marquis Ito is said to be interested in persuading the Korean government to raise a loan of 120,000,000 yen for the purpose of building a sytem of railways throughout Korea.

CANTON HANKOW RAILWAY TUNNELS.—The longest tunnels found necessary to construct the roadway through the Feiloi pass will not exceed 300 feet. A number of Canadian engineers have been engaged to take charge of the work of construction.

PEKING-HANKOW REDEMPTION.—The Belgian Syndicate has declared that the redemption price of the Peking-Hankow Railway is £4,400,000. The Belgians claim more than the actual cost as the term of agreement has not yet terminated.

FEDERATED MALAY STATES RAILWAY TENDERS.—Tenders were invited by the F. M. S. for the contract of loading and unloading freight carried by the railway in Selangor, Negri Sembilan and Malacca, at Port Swettenham and all other stations along the lines of railways. Tenders were opened October 31, 1907.

THE SZE-CHAUN RAILWAYS.—The Board of Posts and Communications at Peking has directed the acting-viceroy of Sze-Chaun to engage a staff of engineers to survey the proposed lines or railway in that province and to prosecute the construction with as much expedition as possible.

KUALA LUMPUR RAILWAY STATION.—Plans are being prepared by the F. M. S. Railways for the construction of a commodious and modern depot at the federated capital to cost in the vicinity of half a million dollars. The work of construction is expected to begin early next year.

JUNCTION OF HONAN RAILWAY AND THE PEKING-HANKOW.—A subscription of Tls. 150,000 has been collected for the purpose of connecting the Honan and the Peking-Hankow Railways at the depot at Hoshanchiao. An engineer has been engaged to survey the route of the connecting link.

CANTON KOWLOON RAILWAY.—Three surveying parties are at work on the survey of the exact route of the Canton-Kowloon Railway. One party is at work in the suburbs of Canton, another is at Shek-lung and a third is operating from the terminus of the British section.

RATE WAR IN MANCHURIA.—The Hsinmintun-Mukden Railway has retaliated against the recent cut in rates made by the Southern Manchurian Railway by reducing the freight tariff one yen on beans and bean products between Mukden and Newchang. This practically takes away the export bean trade from Tairen and the Japanese.

CAWNPORE-BANDA RAILWAY.—A railway, 147 miles in length, from Cawnpore to Banda via Hamirpur and Mandha with a branch from Harpalpur via Rath, is now being surveyed under the direction of the government. The gauge is 5 feet, 6 inch. This road will connect with the Great Indian Peninsula Railways at Cawnpore.

SOOCHOW, HANGCHOW, NINGPO RAILWAY.—Peking has notified the British minister that in view of strong protests filed with the Waiwapu from the governors of Kiangsu and Chenkiang and other railway companies in these provinces, that no foreign loan would be entertained in connection with the Soochow, Hangchow and Ningpo Railway and that the provisional agreement has become null and void.

CHINESE LOCOMOTIVE FACTORY PROPOSED.—A factory for the manufacture of locomotives, rails and other railway equipment is proposed and a company with a capital of 400,000 taels is being formed to carry out the project. The site selected as most favorable is the bund at Wuchang. The output of the factory will be utilized primarily to supply the rolling stock of the Szechuen-Hankow and the Hankow lines.

TOKIO RAILWAY EXTENSION.—On Oct. 14th official sanction was given to the Tokyo Railway Company for the construction of 22 new urban lines and two suburban. At the same time eight applications made by other companies for permission to lay lines which would compete with those of the great Company were rejected. These rejected lines are named the Asabusa, the Johoku, the Jo-o, the Yoshiwara, the Tamawaga, the Asakusa-Soka, and two circular lines about the city.

KWANTUNG-KWANGSI RAILWAYS.—Owing to lack of funds to carry out the scheme for the construction of the entire system of railways in Kwangsi, the directors have made a proposal to the directors of the Yuet Han Railway to combine and build a line connecting Samshui with Wuchow. The Kwangsi company will thus build the line from Wuchow to the Kwangsi-Kwangtung border and the Canton-Hankow Railway is to construct the line from Samshui to the Kwangtung-Kwangsi border to connect with the Wuchow line.

MUKDEN-ANTONG RAIL RAILWAY.—The South Manchurian Railway Co. has decided that the expenditure of 35,000,000 yen in the construction of a line connecting Mukden and Antung is not warranted in the probable immediate returns on the investment and the company is now considering the construction of a line between Antung and Taschichao connecting it with the Seoul-Wiju line in Korea and also with the Chinese Lu-Han Railway. The latter scheme will cost yen, 25,000,000 as against yen 35,000,000 for the Mukden-Antung line. The matter has been submitted to the War Department.

TOKIO RAILWAY EXTENSION.—The *Kokumin Shimbun* gives a list of the extensions now in process of being made by the Tokyo Railway Company. The first is from Shiocho in the Yotsuya district to join the line passing the Aoyama parade ground. The second is from the fourth ward of Hongo to Denzuin in Koishikawa, and the third is from Suidobashi to Hakusan in Koishikawa. These three extensions will be open to traffic in November. Then there are the line from Hiro to Shinohashi, the land for which has already been bought and work is progressing rapidly, and the line from Yedo-gawa to Tenjinmachi, which will be immediately commenced, instead of that from the former place to Otowa, the construction of which will be somewhat deferred.

REVISION OF JAPANESE PASSENGER TARIFF.—An uniform rate was put in operation on all the Japanese government railways on November 1 covering the transportation of passengers. The third class rate is taken as a basis, the second class being 75% higher than the third class and the first class just double the third class. The third class tariff now in effect follows:

	Per mile.
Less than 50 miles	1 sen 6 rin 5 mo.
Over 50 miles but less than 100 miles	1 sen 3 rin.
Over 100 miles but less than 200 miles	1 sen.
Over 200 miles but less than 300 miles	8 rin.
Over 300 miles	7 rin.

PUBLIC AND PORT WORKS, DOCKS, WHARVES, ETC.

FUKUOKA WATERWORKS.—The municipality of Fukuoka is planning the expenditure of yen 2,650,000 in the construction of a modern system of water supply.

MOJI WATERWORKS.—The cost of the proposed waterworks at Moji is estimated at yen 1,660,000. The question will be discussed at a meeting of the Municipal Council and a definite decision will then be arrived at.

OFUNADO HARBOR.—The proposed construction of a harbor at Ofunado is receiving some attention and the surveys are well on the way. In addition it is proposed to build a railway from Kurosawajiri to that point.

OTARU WATERWORKS.—The Otaru Municipality has arranged for a loan of a million yen to be expended in the construction and installation of a modern water supply system.

SOUTH SAGHALIEN IMPROVEMENTS.—The sum of yen 2,600,000 has been authorized expended by the Japanese authorities for the improvement of the public highways and the construction of public building in Southern Saghalien.

IMPROVEMENTS AT KEDAH.—The construction of about forty miles of road with new bridges in Kedah is under way. New wharves and jetty sheds with a frontage of 300 feet on the river. Messrs. Riley, Hargreaves & Co. were awarded the contract for the construction.

GARDEN RIVER BRIDGE.—The work on the Garden Bridge over Soochow Creek is nearing completion. The iron girders have been laid and the frame work is almost entirely in place. The bridge will be one of the most substantial structures in China when completed.

SASEBO PORT WORKS.—The work on the port at Sasebo includes the dredging of the harbor to a depth of 36 feet; the extension of the sea-walls and will be completed in 1909. When all plans are concluded six large battleships may swing at anchor in the harbor and vessels discharge alongside the extensive docks.

FAR EASTERN ENGINEERING, CONSTRUCTION, COMMERCIAL AND FINANCIAL NEWS

ELECTRIC RAILWAY LIGHTING, POWER, TELEGRAPH LINES, ETC.

NAGOYA ELECTRIC RAILWAY.—This company contemplates the construction of a line between Ichinomiya-machi and Gifu by way of Kasamatsu.

F. M. S. TELEGRAPHS.—To facilitate the dispatch of messages over the government lines it is proposed to introduce the duplex system between Taiping and Ipoh.

JOHORE TELEGRAPH LINE. The line under the control of the railways connecting the F. M. S. System with that of Singapore overland will be completed by the end of the present year.

PENANG ELECTRIC TRAMS.—The receipts for August of the Penang Electric Tramway amounted to $6,274.72 and the number of passengers carried was 202, 523. The average fare was 3.13 cents (silver).

GREAT NORTHERN CABLE NATIONALIZED.—The Japanese government has purchased the cable line connecting Fusan and Nagasaki from the Great Northern Cable Co. The price agreed upon was yen 150,000.

OKAYAMA ELECTRIC POWER PLANT.—The municipality of Okayama has decided to establish an electric light and power plant as a municipal enterprise to cost yen 2,150,000. Water power will be utilized.

MANDALAY TRAMWAYS.—The lieutenant governor has approved the granting of a franchise to Mandalay capitalists to build a system of tramways from Mapaya in the district of Mandalay to connect with the Obo quarter of the city of Mandalay.

CHINESE POSTAL AND TELEGRAPHS.—The Board of Communications has decided to take over the telegraph system and inaugurate a complete system of postal service throughout the empire. Telegraph tolls will be paid with stamps according to the regulations adopted.

AUSTRALIAN FLYING MACHINE.—Mr. Thompson, an engineer of Perth, West Australia, has invented a flying machine which will be entered in the Daily Mail's airship race, from Manchester to London. It has a gyroscope feature, one of the wings revolving to the right and the other to the left.

WIRELESS IN INDIA.—The government of India has approved of the installation of a wireless service between Mergui and Victoria Point to connect with a land line between Victoria Point and Maliwan in Lower Burma. The Burma government has guaranteed an annual appropriation of Rs. 41,470.

TSUYAMA ELECTRIC LIGHT COMPANY. The businessmen of the city of Tsuyama have organized a company with a capital of yen 150,000 for the purpose of supplying the city with electric light, and power by harnessing the Tsuyama River. This city is situated in the province of Mimasaka.

SIAMESE TRAMWAY CO.—This company is altering their cars so as to give double entrances at either end. This is to make the car available to prospective passengers from either side of the tract and was made necessary by the irregularity of the track and the arrangement of the buildings on either side.

SHIMBASHA CIRCULAR ELECTRIC.—Orders for the material have been placed abroad for the material necessary to the construction of an electric line to be added to the present circular railway connecting Ueno and Shimbasha via Shinagawa. It is announced that the road will be opened to traffic by August next.

BURMA ELECTRIC TRAMWAYS.—This company is endeavoring to induce the natives of Upper Burma to utilize the electric trams by reducing the rates, but the Rangoon press does not believe in the success of the cut since, as it declares, "The Upper Burman is poverty stricken and lives from hand to mouth."

SHIMBASHA-UYENO CIRCULAR ELECTRIC.—The Minister of Communications at Tokio has sanctioned the projected electric car service recommended by the Railway Bureau. As a result the line between Shinagawa and Omori is to be doubled and the inauguration of the projected service will take place in March or April of 1908.

TOKIO ELECTRIC RAILWAY COMBINE.—It has been announced that the Keihin and Yokohama Electric Railways are making arrangements to amalgamate in view of the recently inaugurated competition of the State Railway between Tokio and Yokohama. Under present arrangements the government charge is 40 sen against 53 sen by the other roads.

TOKYO ELECTRIC WATER POWER SYSTEM.—The new water power system of the Tokyo Electric Light Co. has been completed at a cost of 8,000,000 yen and will be utilized about the beginning of the Year. The capacity of the plant is 4,000 H. P. which will be increased to 17,000 H. P. The company will not dispose of its steam generating plant until it is assured that the water power will meet every demand.

BURMA MOTOR TRANSIT.—Capitalists of Mogok, Burma and Rangoon have organized a limited company for the purpose of inaugurating a motor transport service between Mogok and Thabeitkyin. In addition to this company another has been formed in London to establish a similar service in the Northern Shan States. The former company has ordered six large and powerful climbing cars and the latter company has also placed orders for equipment through the firm of Messrs. McKenzie & Co. of Rangoon.

SHANGHAI TRAMWAYS.—By the first of February it is believed that the entire system of tramways at Shanghai will be in operation. With the completion of the Garden Bridge the installation of the system will be well on the way to completion. The work has been pushed rapidly for months in the International Settlement and the French concession and the center of the city has been put in communication with the outlying sections. The laying of the steel has progressed most favorably toward completion. Some delay will be experienced waiting for the completion of the work on the municipal Electric Generating plant in order to have the necessary power.

JAPAN ELECTRIC RAILWAY NEWS.—The Home Minister gave permission, dated the 14th inst., to the Tokyo Railway Company to lay out 22 tramway lines in the city and 2 in the suburbs, in addition to those already sanctioned.

The Minister has rejected the following applications to construct tramways:—

Asakusa Electric Railway (promoted by Mr. Senzo Matsumoto and 26 others.)

Johoku Electric Railway (Mr. Ko Takeda and 7 others).

Jo-jin Electric Railway (Baron Terauchi and 16 others).

Tamagawa Electric Railway (Extension line).

Tokyo Circuit Electric Railway (one by Mr. Kunoki and 24 others and the other by Viscount Yuri and 57 others).

RAILWAYS AND RAILWAY SUPPLIES

CANTON-HANKOW-RAILWAY.—An effort is being made to have the name of the Canton-Hankow Railway changed to Kuangwu Railway or the Canton-Wuchang Railway.

THE TOBU RAILWAY.—The Kawamata section of the Tobu Railway which connects Tokio and Kawata was completed last month and the entire line opened to traffic November 10.

CENTRAL EASTERN RAILWAY.—The damage to the Otsuki-Sasago section of the Central Eastern Railway caused by the floods has been repaired and traffic was resumed at the end of November.

JAPAN RAILWAY REVENUE ESTIMATES.—The Japanese government places the estimates of revenue from telegraphs at yen 38,000,000 and from railways at yen 45,000,000 for the next fiscal year.

KUALA LAMPUR RAILWAY DEPOT.—It is reported that the estimate of $500,000 for a new central station at the capital of the Federated Malay States has been cut by the High Commissioner to $300,000.

KOREAN RAILWAYS.—Surveys have been made for a branch line of the Seoul-Fusan Railway to Mokpo and the authorities are considering the construction of a railway connecting Gensan and Chinnampo.

SOUTH MANCHURIAN RAILWAYS.—The terminus at Nikutung is to be changed to the new street of Yingkow. The new station is to be built at a point between Chiyoda and Asahi-machi and will include a space of 50,000 tsubo.

PAKNAM R. R. BANGKOK TERMINUS.—Bids for the construction of a two story brick building at the terminus of the Paknam R. R. were opened the last of October and the contract awarded, the price being about Ticals. 20.000.

SZECHUEN RAILWAY.—The board of communications at Peking has been advised that the construction of the Szechuen Railway will commence within the year. The Hupeh section of the road will also be started before the end of the year.

KIRIN-CHENCHOW RAILWAY.—The cost of constructing the railroad from Kirin to Chenchow is estimated at Tls. 2,600,000, half of which will be borrowed from the South Manchurian R. R. and the balance furnished by the Board of Revenue.

MINATO RAILWAY CO.—This company has been organized with a capital of 250,000 yen for the purpose of constructing and operating a railway between Mito and Minato. This road will tap one of the most productive fishing centers in Ibaraki prefecture, Japan.

THE HUNAN RAILWAY.—The survey between Kueiyuan and Changsha has been completed. As it did not include the city of Shangtan, the gentry there have decided to raise one million taels to participate in bearing the outlay for construction so that the road will include their city.

OKAYAMA AND UNO BAY RAILWAY.—The surveys of this proposed railway have been completed for a distance of over 20 miles and it is expected that the expropriation of the land involved will have been concluded and construction work commenced by November of next year. This road is in Bizen province.

THE TOBU RAILWAY.—This company has decided to abandon its present line which connects Mikuriya and Ashikaga in the district of the same name by way of Yamabe and Keno, and will construct a new line from Mikuriya to Isesaki in Gumma prefecture where it will join the government line.

SUCHOW-NINGPO-HANGCHOW RAILWAY.—Notwithstanding the opposition on the part of radical Chinese to the floating of the British loan for the construction of this railway, it is understood that the Chinese foreign office will be obliged to carry out the conditions of the contract entered into with the British and ignore the anti-foreign agitation.

STANDARDIZING THE SOUTH MANCHURIAN RAILWAY.—The inroads made on the traffic to Kirin and Mukden by the Chinese Eastern and Peking-Mukden R. R. especially in the transportation of bean-cake, has influenced the management of the Southern Manchurian R. R. to increase the carrying facilities of that road. Accordingly it has been decided to complete the conversion of the entire line to a standard gauge as soon as feasable.

KUANCHENGTSE-KIRIN-ANTUNG RAILWAY.—Japan is insisting on the early settlement of the questions arising in regard to the construction and control of the railways and telegraphs in Manchuria and particularly those clauses of the Japan-Chinese agreement affecting the railway from Kuanchengtse to Kirin and Antung. Peking has taken the matter under advisement. Japan has also asked for an early survey of the road by deputy-surveyors representing the respective countries.

CHINESE FOREIGN RAILWAY LOAN.—The viceroy at Mukden has been authorized to float a loan of Tls. 40,000,000 to be invested chiefly in railways and other productive enterprises. He will also establish official banks in the Eastern Provinces. The loan will be utilized particularly in the construction of the Hsunmintun-Amur Railway which will begin in March and in addition to this when arrangements are completed for the construction of the Kuanchengtsse-Kirin Railway, part of the loan will be invested therein.

SAN-NING RAILWAY.—Of the 50 miles of this railway about 20 miles will be completed at the end of the year and put in operation. It was expected that the street would be laid by the middle of December as far as San Ning City but this work will probably take another month. It is not certain that the construction of the balance of the road will be expedited at this time as some difficulty is being experienced in raising the necessary funds. Kung Yih, the starting point of the line was recently visited by a typhoon and fire that resulted in serious damage.

CHINESE IRON INDUSTRY.—The Chinese government is encouraging the manufacture of railway steel and supplies and it has been found that the product of the plants on the Yangtsze that supplied the rails for the Hankow-Peking Railway has met the requirements of railway practice. A large plant will be constructed next year for the manufacture of rolling stock and structural steel at Han-yang. The low cost of labor and the availability of the coal fields promise to make the enterprise a success and particularly so since the home demand in the next few years will be enormous.

JAPAN'S RAILWAY PROGRAM.—The new Government railway lines expected to be completed and open to traffic within the coming five years are as follows:—Niekawa-Miyanokoshi section (11 m. 4 c.) and Miyanokoshi-Mitomeno section (26 m. 5 c.) of the Central Eastern line to be completed in March, 1912; Mitomeno-Sakashita section (5 m. 4 c.) the same line in September, 1909; Hitoyoshi-Yoshimatsu section (20 m. 9.) of the Kagoshima line in September, 1910; Yatsushika-Shirosaka section (15 m. 3 c.) of the Yin-yo line in May, 1912; Ayabe-Sonobe section (26 m. 1 c.) of the Maizuru line and the new Okayama-Uno line (19 m. 3. c.) in September, 1909.

JAPAN'S RAILWAY BUDGET.—The railway expenditure in next fiscal year's Budget has been reduced by the Financial Department to 26,700,000 odd yen for new construction and 28,000,000 yen for improvement work, which totals 54,700,000 yen. The new lines to be constructed next year include the remaining section of the O-u line, Uratomi-Kozumi, Kozumi-Kisaki, Wada-Kozumi, Matsuye-Imaichi sections of the In-yo line, Miyagi-Shiwojiri and Nojiri-Miyagoshi sections of the Central line, Sonobe-Ayabe section of the Maizuru line, Yatsushiro-Hitoyoshi section of the Kagoshima line, Fukagawa-Rumoye and Ikeda Abashiri sections of the Hokkaido line, Naoyetsu-Nadachi and Tayama-Awomi section of the Tominawo line, Okayama-Uno section of the Sanyo line, Kitagata-Niitsu section of the Gan-Etsu line and Usa-Oita section of the Kyushu line.

FORMOSAN GRAND TRUNK LINE.—Progress is reported to have been made on the trunk line in Formosa which runs north and west in the island. The section connecting Takao and Hozan (Fengshan) has been completed and from indications Taipeh in the north and Takao in the south will be connected by next Spring. The survey of a Railway running east and west connecting Taipeh and Giran has been completed and construction will not be delayed as soon as the conditions there improve. It is expected a road will be built connecting Pinan and Bokuseki-kaku, a distance of 57 miles while the savages are being tranquilized. This construction will form one of the items in the program which has been provided for in the appropriation of public works of which yen 5,000,000 is to be spent in constructing the projected routes.

PUBLIC AND PORT WORKS, DOCKS, WHARVES ETC.

COLOMBO WATERWORKS.—The water system of Colombo has been transferred to the Municipal Council by the public works department.

NAYOGA HARBOR IMPROVEMENTS.—This work commenced this month and a big celebration was held December 10 to celebrate the occasion.

China, Manchuria, Japan, Indo-China, Siam, Straits Settlements, Malay States, Burma, India, Malaysia, and the Philippin

ILLUSTRATED FEATURES *Chinese Railways, Mining and Telegraphs—Philippine Provincial Capitols—Phil ippine Officials—Philippine Woods—The Airship China—Foranosuke Furukawa.*

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THE FAR EASTERN REVIEW

COMMERCE ✪ ENGINEERING ✪ FINANCE

VOL. IV. MANILA, P. I., SHANGHAI, AND YOKOHAMA, JANUARY, 1908 No. 8.

CHINESE RAILWAYS, MINING AND TELEGRAPHS

The most valuable addition to commercial literature of the Far East is the exhaustive report on the foreign trade of China by Sir Alexander Hosie, Acting Commercial Attaché to His British Majesty's legation at Peking, recently issued from the British Foreign Office in the form of a blue book. Perhaps at no time has the Foreign Office edited a more complete and comprehensive review of the progress of China, covering every avenue of trade and industry.

Under the head of "Telegraphs, Railways and Mining," he writes:

At the end of 1906 the Imperial Chinese Telegraph Administration had a system length 22,419½ miles, with 34,473½ miles of wires and 946.11 nautical miles of submarine cables. Offices numbered 379, of which 62 were open for day and night service and 317 for day service only. The number of instruments in actual use was 768. The staff of the head office in Shanghai numbered 67 and the general staff 3,175, while inspectors, linemen, etc., totalled 2,400.

In addition there are many provincial lines, usually constructed by the Administration, worked and managed independently by the provincial authorities.

The telegraph companies having connections with China are the Great Northern, Eastern Extension, German-Dutch and Commercial Pacific, while a French cable connects Tourane with Amoy, a German cable Shanghai with Kiaochow and Chefoo, and a third cable, partly Chinese, Chefoo with Port Arthur. The last was cut during the war between Japan and Russia and is not yet repaired. China has also frontier connections with Burma, Indo-China and Russian Siberia.

In my report for 1905 I dwelt at some length on railways and mining in China, and, although it is unnecessary to recapitulate what I then said, it may be well to place on record the changes and developments that have since taken place.

THE BUND AT AMOY.—THE LARGE BUILDING IS THE CHINESE IMPERIAL CUSTOMHOUSE, WITH THE OFFICES OF THE OSAKA SHOSEN KAISHA AND BANK OF TAIWAN AT SIDE

In Manchuria the railway lines from Port Arthur, Tairen (Dalny) and Newchwang to K'uan-ch'êng-tzu or Ch'ang-ch'un Fu, together with a few short branch lines which fell to Japan as the result of the war, have been transferred to a company called the South Manchurian Railway Company, which will carry out the terms of the additional agreement between China and Japan of December 22, 1905. The light line built by Japan from Moukden to Antung, 187 miles in length, has also been transferred to the company, which will maintain, work and improve the whole system so as to make it fit for the conveyance of the commercial and industrial goods of all nations. One of the proposed improvements is to duplicate the line from Tairen to Moukden. The line which was built by Japan from the Moukden railway station westward to Hsin-min Fu (Hsin-min-t'un), 36 miles in length, was by an agreement with Japan of April 15, 1907, purchased by China for the sum of 1,660,000 yen and has been incorporated in the Imperial Railways of North China, and the alteration of its gauge, which was 3 feet 6 inches, to the standard gauge has already been practically completed. The line from K'uan-ch'êng-tzu to Harbin and east and west to the Russian frontier remains in Russian hands as the Chinese Eastern Railway, which in Chinese territory is now curtailed to 1,072 miles.

The Imperial Railways of North China had another prosperous year in 1906. The gross earnings for the year ending September 30, 1906, amounted to 12,191,188 dol. 81 c. as compared with 12,943,383 dol. 88 c. during the previous year. Maintenance, rolling-stock, traffic and general expenses and charges amounted to 3,429,942 dol. 68 c., leaving a balance of 8,761,246 dol. 13 c. to be carried to the net balance account. Deducting repayment of loan, payment of interest and other charges, including reconstruction of Boxer damage, amounting in all to 1,953,452 dol. 64 c., there was a balance of 6,807,793 dol. 49 c. Improvements' account amounted to 1,739,773 dol. 57 c., thus leaving a balance of 5,068,019 dol. 92 c. A sum of 3,573,565 dol. 57 c. was paid to the Imperial Chinese Government and 1,857,-142 dol. 86 c. contributed towards the construction of the Fengt'ai-Peking-Kalgan line, together 5,430,708 dol. 43 c., swallowing up the balance of 5,068,019 dol. 92 c. and leaving a deficit of 362,688 dol. 51 c., but there was brought forward from the previous year a balance of 5,562,988 dol. 63 c., to which has to be added the part and interest of the indemnity claim amounting to 1,727,688 dol., a total of 7,290,676 dol. 63 c., so that there was a credit balance of

(Continued on page 229.)

CHINESE RAILWAYS, MINING AND TELEGRAPHS

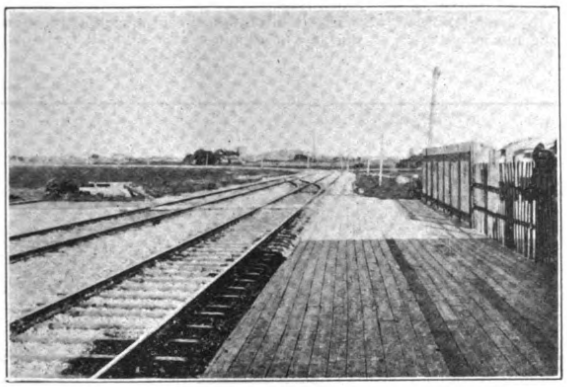
(Continued from page 225.)

6,927,988 dol. 12 c. at the end of September, 1906.

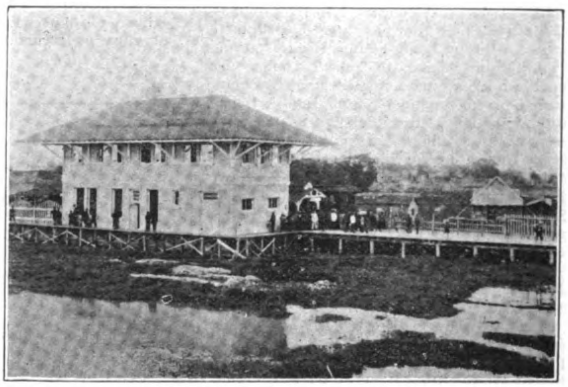
In 1905 a contribution of 1,500,000 dol. was made by the Imperial Railways of North China for the construction of the Feng-t'ai-

Wash-outs in the province of Honan interrupted for a time the traffic on the Ching-Han (Peking-Hankow) Railway during 1906, but a number of new culverts have been added and other measures taken to prevent their recurrence. I have travelled in many parts of China, and although I had heard of the great plains of Eastern China, the railway journey from Hankow to Peking was a perfect revelation to me. In Hupei the railway is able to thread its way through low hills which close

Everything seemed to be in good order, but my business with the railway is commercial. On an average eight freight trains heavily laden passed down during each of the three days I spent on the line; but with the exception of coal and salt, the latter in large quantities bound for Honan from the Lut'ai salt works near Tientsin, most of the goods were carried in covered sealed wagons whose contents it was impossible to ascertain. Piece and other foreign goods at the railway station at Hankow left no doubt



VIEW OF TRACK ON CANTON-HANKOW RAILWAY FROM FATSHAN STATION

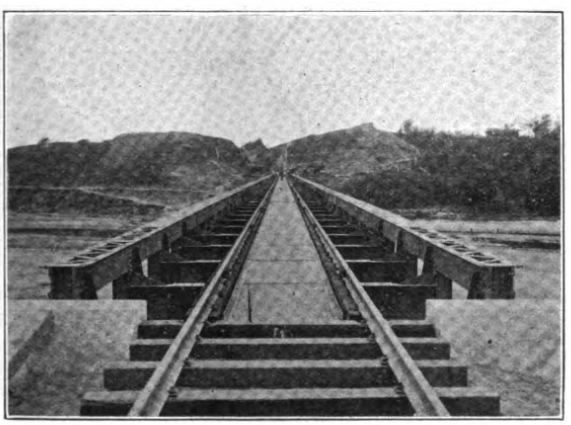


REAR VIEW OF FATSHAN STATION ON THE CANTON-HANKOW RAILWAY

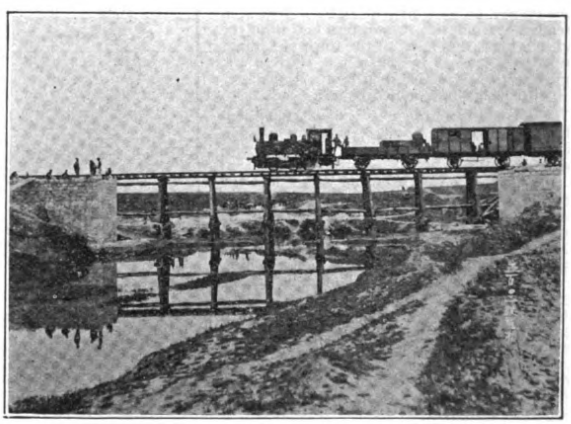
Peking-Kalgan line, and as stated above the contribution was increased by 1,857,142 dol. 86 c. in 1906. The line, which really branches off 2 miles north of Feng-t'ai and crosses the Ching-Han a little to the west of Peking, was opened to traffic on September 30, 1906, as far as Nan-k'ou, a distance of 33 miles from Peking, and is in good working order. Tunnelling is proceeding beyond Nan-k'ou. The first tunnel, about 1,300 feet long, is half way up the Nan-k'ou Pass. This is followed

in upon it from time to time until a higher range of hills, which forms the boundary of Hupei and Honan, is reached. A tunnel of some length has been pierced through the range and at the northern end the line enters on the plain of Honan passing through a countrs, resembling in every respect thprairinde lae y of Canada. As far as the eye can reach there is frequently nothing but plain and, in the absence of watercourses, one can readily imagine the destruction that may be caused by tropical

to the nature of the up freight. In Hupei the principal crops were wheat, peas, beans and paddy, for the rice-seed beds were being sown, while in Honan rice disappeared, wheat and the opium poppy predominated and the principal tree was the jujube (commonly called the Chinese date), *Zizphus vulgaris*, Lamb. Cotton, however, is a great autumn crop in Honan and it has a good reputation for cleanness and colour



240 METER BRIDGE ON THE PEKING-HANKOW RAILWAY



TEMPORARY BRIDGE ON THE LINE OF THE PEKING-HANKOW RAILWAY DURING CONSTRUCTION

by two short tunnels of 60 and 90 feet already completed and at the top of the pass comes a long tunnel of 3,000 feet at which work is proceeding, as in the first tunnel, at both ends as well as at a central shaft 90 feet deep. In April half of the first and 1,150 feet of the long tunnel had been completed and it is expected that they will be finished during the coming autumn. To the north-west of the tunnelling the embankment is being continued.

rains both to the railway and to the crops. On the south bank of the Yellow River a short tunnel through a low hill leads on to the bridge of 102 spans—a monument to human skill—over which the train passes slowly in 16 minutes. Except for two streams of no great volume, some distance apart, the wide bed of the Yellow River consisted of sand (it was April), and at several points workmen were busy piling stones on bundles of reeds built around the screw piles to which the bridge is lashed and chained.

In Honan and Chihli the cultivation of Central and Southern China was left behind. Each field covered many acres and ploughing with ponies, bullocks, donkeys, mules and even human beings was merrily proceeding on the land not under crop. The ordinary train takes about 36 hours' travelling to cover the 754 miles between Hankow and Peking, the same as the weekly express, which, however, travels at night, and, although the distance could easily be accomplished by the latter in

24 hours, it is considered advisable to run slowly avoid accidents and give no opportunity to those who, in a country like China, would willingly denounce the iron horse. The line is undoubtedly paying well, and I have the best authority for stating that an express brings in per trip 4,000 to 6,000 dol. and has paid as much as 8,000 dol. With the exception of the Yellow River bridge there were no great engineering difficulties to contend with in the construction of the line which passes over a remarkably flat, easy country. In the province of Chihli the Ching-Han has three short branch lines:—(*a*) From Liang-hsiang Hsien station, 19 miles from Peking, to Tuli, 12 miles; (*b*) from Liu-li-ho, 30 miles from Peking, to Chou-kou-tien, 10 miles; and (*c*) from Kao-yi Hsien station, 203 miles from Peking, to the coal mines of Lin-ch'eng Hsien, a distance of 11 miles. These branch lines were constructed for the purpose of obtaining supplies of stone, lime and coal.

Some years ago the Imperial Railways of North China constructed, for the use of the Court, a light line from a point some 4 miles to the west of Kao-pai-tien, a station on the Ching-Han Railway, 52 miles from Peking, westward to the Imperial tombs, a distance of about 50 miles. There is a daily passenger train over the line.

I may mention here that a short line of 4 miles from Fêng-t'ai to Lu-kou-ch'iao built and owned by the Imperial Railways of North China connects their system with the Ching-Han Railway. Fêng-t'ai station is 13.18 miles from the station in Peking.

Of the branch line known as the Chêng-T'ai Railway, which leaves the Ching-Han at Chêng-t'ou (the first station to the south of Chêng-ting Fu) for T'ai-yüan Fu, the capital of the province of Shansi, a distance of 155 miles, 87 miles were open to traffic at the end of 1906. Since then work has been rapidly pushed forward and it is expected that the remaining 68 miles will be completed in the coming autumn.

As regards the Tao-k'ou-Ching-hua (Tao Ch'ing) line in the province of Honan, which was taken over by China in 1905, it has been extended 2¾ miles at the western end from the field in which it stopped to the town of Ch'ing-hua. It is crossed by the Ching-Han to the immediate south of the Hsin-hsiang Hsien station with which it is joined by rail.

The Pien-Lo Railway is so called from Pien-liang-ch'êng, the old name of the city of K'ai-feng Fu, the capital of the province of Honan, where it starts on the east, and Lo-yang Hsien, its present destination, within which lies the prefectural city of Honan Fu. With the proposed extension to Hsi-an Fu, the capital of the province of Shensi, the line will be 116 miles in length. It is open for traffic from K'ai-fêng Fu to Cheng Chou, where it crosses the Ching Han Railway, and for several sections to the west. At the end of 1906 41 miles were completed. Trains were running regularly between Chêng Chou and K'ai-fêng Fu and I had just time at the former station to ascertain the passenger fares between the two places; they were:—First class 2 dol. 40 c., second class 1 dol. 60 c., and third class 80 c. There is only one intermediate station.

The Tsingtau-Chinan-Poshan Railway, in the province of Shantung, 270 miles in length, is credited by the customs report of Kiaochow with the carriage of 847,379 passengers and 448,941 tons of freight, mostly coal and coke, during 1906, but the German official returns give 823,000 passengers and 368,000 tons of goods. There is another short line, 4 miles in length, in Shantung connecting Huang-tai-ch'iao and Lo-kou.

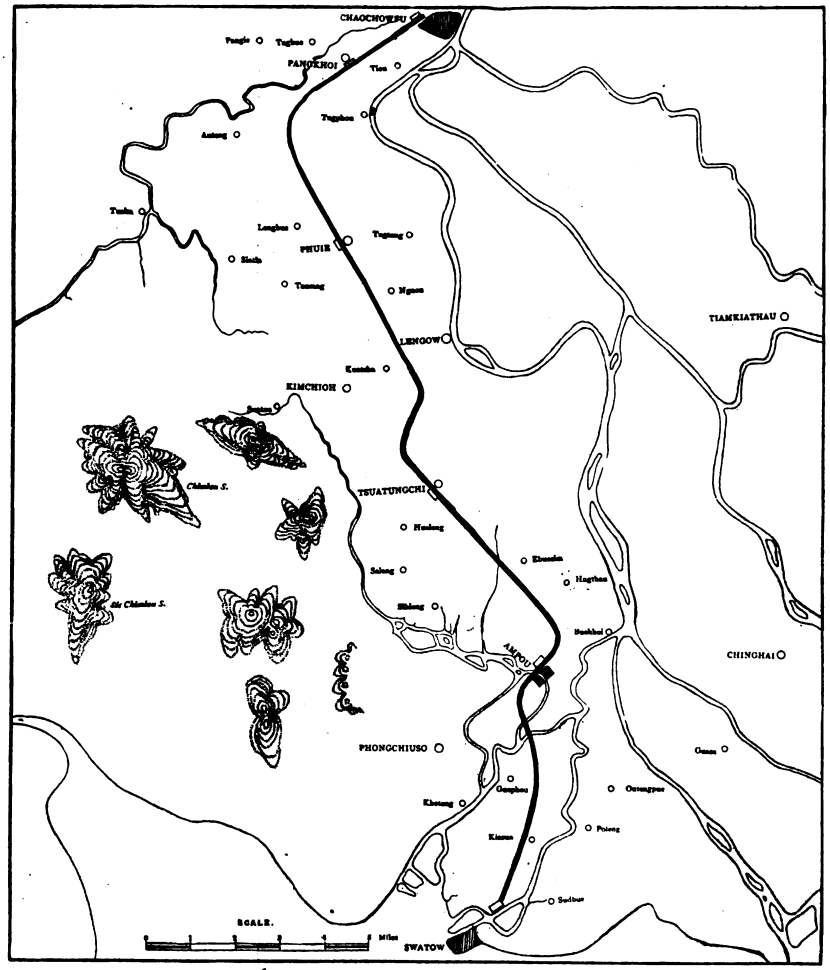
The total length of the Shanghai-Soochow Chinkiang-Nanking Railway now under construction by the British and Chinese Corporation is 193 miles. In July, 1906, trains were running between Shanghai and Wusieh, a distance of 70.80 miles and the line has recently been opened as far as Chang Chou or 103.94 miles. It is anticipated that the whole line will be completed and in working order in the spring or early summer of 1908. The tunnel near Chin-kiang, some 1,400 yards in length, has been found more difficult than was anticipated. In the four weeks ending June 15, 1907—the latest returns available—the total number of passengers carried was 132,543. In addition to the daily average of 4,734 passengers, 18,000 tons of cargo were carried, while the total earnings for the four weeks amounted to 91,667 dol.

On November 14, 1906, the first sod of a railway to connect Hangchow, the capital of the province of Chekiang, with the foreign settlement was turned under the auspices of the Chekiang Provincial Railway Company, a purely Chinese undertaking. By the route laid down the distance was to be 12 miles, and in March of the present year an embankment 10 miles in length had been built and locomotives imported.

There has been no change in the An-yüan-P'ing-hsiang-Chüchou line in the province of Kiangsi and Hunan, the length of which, however, is given as 64 miles not 56½ miles as stated in my report for 1905.

The Swatow-Ch'ao-chou Fu (24½ miles) line was opened to traffic on November 28, 1906, and was in full swing when I travelled over it in March. It labours under the great disadvantage of its termini being each three-quarters of a mile distant from Swatow and Ch'ao-chou Fu, but it is intended to bring the southern terminus at Swatow to the bank of the river on land to be reclaimed for the purpose. It was built by a Japanese contractor and Japanese employés were in evidence at each of the nine stations. Three trains run each way daily and the earnings run from 600 to 700 dol. per day. There is a short extension round and beyond the city of Ch'ao-chou to a place called Kagee.

The Canton (Shek-wai-tong)-Fatshan-Samshui line of 30 miles, with a double track of 10



MAP OF THE SWATOW-CHAO-CHOWFU RAILWAY

miles as far as Fatshan, continues to prosper. The number of passengers carried in 1906 was 2,910,875; the daily average in and outof all stations was 7,975; the total numbers carried to and from Samshui were 241,476 and 156,099; and the greatest number carried in one day (January 22, 1906) was 14,855. I may mention here that the baggage allowance of passengers is:—First class, 100 lbs., second class 75 lbs. and third class 50 lbs.; and that the fares over the whole line are:—First class 1 dol. 75 c., second class 1 dol. and third class 55 c.; and the time occupied is one hour and a quarter. Trains run every hour between Canton and

Fatshan and every two hours between Fatshan and Samshui. The receipts average 60,000 dol. a month and the ratio of expenses to earnings is 33 per cent. The earnings in 1906 were 9,000 dol. ahead of the 1905 figures. During April, 1906, the West River burst its dykes, the line was washed out for 2,000 feet near Sainam bridge and the track was 6 feet under water for a mile and a half. The foundations of one of the abutments of one of the bridges gave way and passengers had to travel by cargo boats for about three weeks, but the actual stoppage of traffic was only a day and a half. The line generally is being improved, and on account of the poor quality of the ties used by the constructing company 35,000 sleepers have had to be replaced at a cost of 65,000 dol. The widening of the embankment and the raising of the track cost 109,416 dol. during 1906. No accidents of any consequence occurred during the year, but several deaf and blind persons were struck by passing trains and killed. Chinese are being trained in the offices and workshops at Shek-wai-tong for future employment on the Canton-Hankow Railway. The rolling-stock is inadequate for the traffic, and I was informed by the superintendent that cars and wagons had been ordered from the United States and that an instalment of the order was expected any day. I may state that there are only two foreigners connected with this line—a superintendent and a head carpenter, both Americans and doing excellent work.

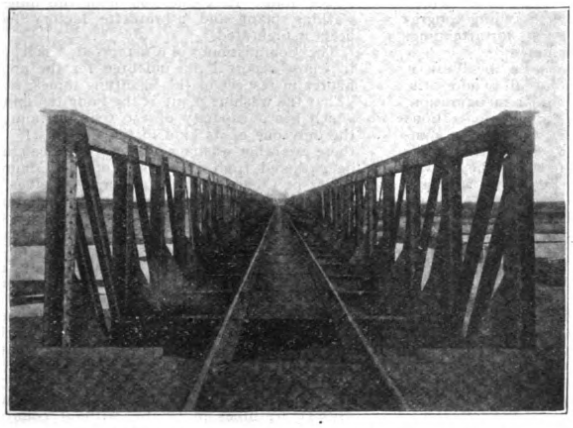
Opposite Shek-wai-tong and on the left bank of the Canton River, about a mile above the Island of Shameen—the foreign concession—is Wong-sha, the southern terminus of the Canton-Changsha-Hankow Railway, which, in spite of the discord among its Chinese shareholders, is being built northwards. In March, 1907, I walked up the single track as far as a long cutting beyond which rails had been laid for 10 miles. At the start the embankment is low and sandy, but further on it was some 6 to 8 feet in height and built of a yellowish clay. Construction trains were passing up and down. In the 3 miles there were numerous temporary wooden bridges across creeks and I was informed by a competent authority that the average cost of the permanent line, including rolling-stock, of the 720 miles between Canton and Hankow would be about 75,000 dol. per mile.

The above three railways are in the Kwangtung or Canton province, but there is a fourth known as the Kungyik-Sunning-Samkapoi, 55 miles in length, now under construction in the south of the province by a Chinese company, and I was informed that the railway material was being brought from the United States and that construction trains were already running on the line.

The French are slowly pushing their railway from Tonkin into the province of Yünnan. At the end of 1906 it was open in Chinese territory from Ho-k'ou for a distance of 19 miles; in May of the present year the distance was increased to 44 kiloms. or 27 miles, and as work is being rapidly pushed forward along the whole line it is anticipated that it will be open as far as Mengtzu in April, 1908, and that in from 18 months to 2 years thereafter, that is to say, at the close of 1909 or beginning of 1910, the whole of the 292 miles to Yünnan Fu will be built and in working order.

I cannot leave railways in China without a few words regarding the Hong-Kong (Kowloon) Canton line, which will run to a length of 125 miles, 21 miles of which lie in British territory and are being constructed by the Hong-Kong government. Work on the British section was begun at the end of 1905, and tunnelling, bridging and embankment laying have all been proceeding simultaneously, with the result that, although I was authoritatively informed in Hong-Kong in March, 1907, that it would

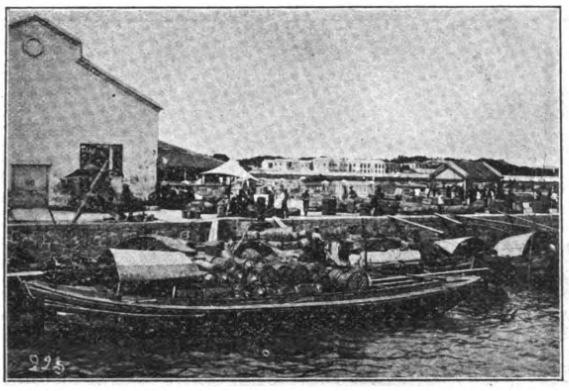
THE BUND AT AMOY



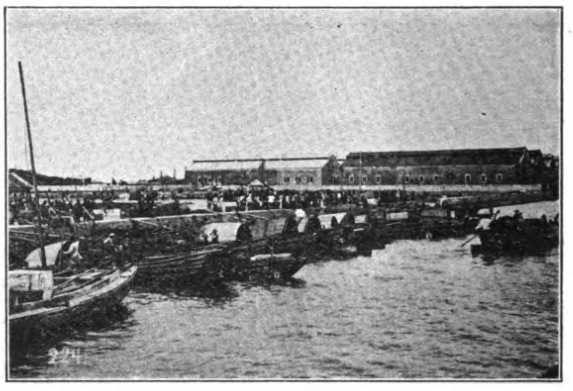
240-METER BRIDGE ON THE PEKING-HANKOW RAILWAY

ARRIVAL OF TRAIN AT CHUCHOW STATION, PEKING-HANKOW RAILWAY

not be completed until 1910, it is now expected that the work will be finished by the end of 1909. A working agreement has to be signed by the Hong-Kong and Kwangtung governments, and there now remains the construction of 104 miles within Chinese territory to link



THE BUND AT SWATOW SHOWING CUSTOMS INSPECTION SHED



BUND AT SWATOW SHOWING THE GODOWNS OF THE CHINA MERCHANTS STEAM NAVIGATION CO.

up Hong-Kong, or rather Kowloon, with Canton, the most populous city in China.

In addition to the Soochow-Hangchow-Ningpo Railway in the provinces of Kiangsu and Chekiang and the Tientsin-Chinkiang Railway in the provinces of Chihli, Shantung and Kiangsu, the concessions for the construction of which are at present under discussion with the Chinese Government, I have before me a list of 22 railways projected by Chinese to be built by Chinese and covering different parts of the Empire from Mongolia and Ili in the north and north-west and Manchuria in the north-east to the province of Kwangtung in the south and from Ssuchuan in the far west to Kiangsu in the east. It is at present unnecessary to enumerate these various lines, as some of them may never materialise, and I shall confine myself to one or two of the shorter lines in regard to which some steps have been taken and whose prospects of realisation are not at all remote. I shall select three:—(1) From the port of Kiukiang on the Yangtsze in the province of Kiangsi to Nan-ch'ang, the capital of the province; (2) from the port of Wuhu on the Yangtsze in the province of Anhui to Ningkuo Fu and Kuangte Chou in that province and later on to connect with the Soochow-Hangchow-Ningpo line at Hu-chou Fu, and (3) from Shanghai to Kashing (Chia-hsiang Fu). As regards (1) a commencement has been made with the embankment to the west of Kiukiang; in the case of (2) a railway wharf has already been secured by the Anduí Railway Company in the general settlement at Wuhu, while some bridging has been done further inland and the first sod of the Shanghai-Kashing (Hu-Chia) line was turned on January 21, 1907. The enthusiasm for railway building in China generally may be gathered from the following report of the turning of the first sod which appeared in a Shanghai paper at the time:—"The turning of the first sod of the Hu-Chia (Shanghai-Chiahing or Kashing) Railway took place on Monday afternoon outside the Great South-gate of the native city of Shanghai. The managers of the proposed line obtained the headquarters of the Chinese volunteers of the native city for the reception place for receiving the guests invited to witness the ceremony of digging the first sod, which place was quite a third of a mile from the reception hall, both places being prettily decorated in red colours above all of which the dragon flag proudly waved. The ceremony took place at about 2.30 o'clock. The head director of the company struck the first spade into the sod and His Excellency Lü Hai-huan, the Chinese Treaty Commissioner, being highest in official rank amongst those present, dug the first sod on behalf of the guests. This was done amidst a great salvo of fire-crackers and music by a military band This over, the guests marched back to the reception hall, where refreshments awaited them. During the repast speeches were read, first by Taotai Li, on behalf of His Excellency Viceroy Tuan Fang of Nanking; the next speech being that of His Excellency Governor Chên Kuei-lung of Soochow, which was read out by Taotai Lu Shun-peh. The third speech was that of the Shanghai Taotai, which was read by his deputy, Sub-prefect Liang. The fourth and last was the speech of His Excellency Chêng Su-an, former Commissioner of Frontier Defence in Kuangsi. His Excellency spoke on behalf of the gentry and merchants of Shanghai, congratulating the company at the energy and patriotism shown by them by undertaking such a great venture as that of constructing railway lines over the whole province of Kiangsu—hence the name of the company, the 'Kiangsu Province Railway Company.' Mr. Hsia, representing the chief and vice-director of the company, then read out the joint speech of those two gentlemen thanking the makers of the preceding congratulatory speeches and the guests for attending. The proceedings then terminated."

While borrowing railways from the West, it will be seen that China does not fail to adopt the functions which accompany their inauguration.

Little is heard regarding Japanese operations at the Fushun and Yen-t'ai coal mines in Manchuria, and as coal is not brought down country to Newchwang it is likely that only the railway and local requirements are at present supplied. Doubtless the mines, which contain excellent coal, will be developed later by the South Manchurian Railway Company to which they have been assigned by Japan.

My object in writing of mining was to refer to mines in China worked by foreign methods and under foreign superintendence, but I cannot pass over one native mine, called the Chingching because it lies in the Ching-ching district of the province of Shansi. It supplies the Chêng-T'ai Railway with fuel and the coal is in much demand as a home coal in Chihli province. Coke, manufactured at the mine, is brought to Tientsin and used in the two mints there. Coke, manufactured at the mine, is brought to Tientsin and used in the two mints there.

The output of the Chinese Engineering and Mining Company's three mines in the K'ai-p'ing district to the north-east of Tientsin amounted in 1906 to 958,675 tons against 851,523 tons in 1905. These mines supply the northern railways, steamers, local markets, part of Manchuria and to a certain extent Northern China as far as the Yangtsze. The output does not more than keep pace with the demand.

Under railways I have already referred to the branch line of 11 miles from the Kao-yi Hsien station on the Ching-Han Railway to the coal mines of Lin-chêng which are, I believe, worked under foreign superintendence. These mines supply the Ching-Han Railway with fuel as well as local and other markets.

In my 1905 report I mentioned that the Peking Syndicate's mine at Pai-shan in the province of Honan had been flooded after 14-foot seam of coal had been pierced, and that it had been found necessary to send for increased pumping plant from the United Kingdom. It has been found, however, that the seam struck was too friable to work, and at a still greater depth another seam, 10 feet in thickness I believe, has been reached and at the present time, and as a beginning, 10 tons of good workable coal are being raised daily.

At the Fang-tzu mines in the province of Shantung the Shantung Mining Company produced 163,233 tons of coal during 1906 against 134,00 tons in 1905. The output at the Poshan mine from July, 1906, when the first seam of coal was struck to the end of December was 7,136 tons. The Fang-tzu mine admitted of an export from Shantung of 23,000 tons. In connection with this mine a washing plant and a briquette factory have been inaugurated.

The Commissioner of Customs at Kiaochow, to whose report I am indebted for the above figures in respect of the Shantung mines, says: "That the washing plant at the Fang-tzu mines, which has a capacity of 150 tons an hour, is the only one of its kind in the Far East," but there are other washing plants in China as may be gathered from the report of the Commissioner of Customs at Changsha, who gives an excellent description of the Ping-hsiang mines in the province of Kiangsi worked, like the Shantung mines, under German superintendence. Mr. Ready's description is well worthy of reproduction. He says: "Although there are known to be hundreds of coal mines scattered throughout this district, they are all, with one exception, worked in the most primitive and unproductive manner. This one exception is the Ping-hsiang coal mine, which, situated in Kiangsi, just beyond the Hunan border, is connected with the Siang River at Chuchow, some 50 miles above Changsha, by a trunk railway 64 miles in length, without counting several miles of sidings, which, moreover, are continually being increased. This line is substantially built, the rails weighing 76 lbs. per yard, while the gauge of the track is 4 feet 8½ inches, and well ballasted with broken stone and gravel. These rails were manufactured at Hanyang, though most of the sleepers were imported from Japan. The bridges are of either steel girders or masonry arches, the longest being about 500 feet. The present daily traffic consists of four trains each way, carrying about 800 tons of coal and coke, while to each are attached three passenger cars, usually well filled. The mine was opened in 1898 with the

object of providing coal and coke for the Hanyang iron and steel works, and, under skilled German supervision, has been steadily developed until, during the past year, both the surface and underground plants were completed to the standard of a daily output of 1,500 tons of coal, which it is expected will be increased to 3,000 tons a day in the course of a few years provided the Hanyang Iron and Steel Works are developed according to present anticipations. The average output of coal during the year was 1,000 tons a day, the greater part being turned into coke, leaving about 200 tons of coal, in the form of washed and screened lumps and nuts, for sale. The coke, being made from washed dust coal only, is of good quality and very suitable for blast furnace work, while the coal is good steam coal, as proved by tests made on both British and German gunboats. The mine consists of an adit and a shaft plant. The main adit has been driven a length of 2,000 metres, the first seam of the south-west coal field being then reached. Haulage in the adit will be done by electric locomotives. The main shaft of 4.5 metres diameter has a depth of 115 metres, while the first level is driven at a depth of 50 metres and the second level at a depth of 100 metres below the adit level. The secondary shaft, however, has only reached the first level. Up to the present the output has chiefly been taken from the adit level and from the first level. The total amount of coal contained in that part of the Ping-hsiang coalfield, which belongs to the Ping-hsiang Coal Mining Company, is computed at 300,000,000 tons, whereof a great part can be taken out by the level adit, while it is estimated that a shaft depth of only 200 metres will be sufficient to drain the whole coalfield, which shows the working conditions to be most favourable. Exclusive of machinery for the mine plant, the surface plant consists of two coal screening and washing plants, 174 coke ovens, one fire-brick factory, one coal briquette plant, one machine shop and foundry. At Chuchow the coal and coke is either loaded into the company's tow boats and lighters, to be towed down river 282 miles to Hanyang by the company's own tugs, or into native junks, which make the voyage under their own sail. An extension of the railway from Chuchow to a point 20 miles above Changsha, by which a large bend of the river with many shallows would be cut off, is now under consideration, also the company's already considerable fleet of light-draught tugs, lighters and tow boats is shortly to be largely increased. The skilful energy with which this isolated enterprise in scientific mining and transportation has been worked up to such a brilliant success in the face of untold difficulties reflects the greatest honour on those concerned, while as an example of Western methods in this undeveloped mining district its value cannot be overestimated."

The last coal mine to which I shall refer is that being or about to be worked by the Kiangpei Coal and Iron Mining Company in the province of Ssuchuan. Much time has been lost in making preliminary agreements, but a large mine not far from the port of Chungking, which was already being worked by a British pioneer in conjunction with Chinese, has been secured by the company, the necessary plant has been ordered and will reach the mine early in 1908, and when the light railway, the construction of which from the mine to the nearest waterway forms part of the concession, has been built, there is every hope that the output of this coal, one of the best in China, which finds a good local market and has been exported down river for many years, will be largely increased by the use of more scientific methods.

The Anglo-French quicksilver mines in the south-east of the province of Kueichow have so far not proved much of a success.

SWATOW-CHAO CHOW FU RAILWAY

The Chao Chow & Swatow Railway Co., Ltd., is the first distinctly Chinese railway organization which has succeeded in building and operating its road. The Company is registered under the Hongkong ordinances, and a director, Mr. Ng Li Hing, resides in that Colony and looks after its interests there. The head office is located on Chee On St. in Swatow.

The construction work was carried out by Japanese engineers, under the direction of the well known firm of Mitsui Bussan Kaisha. The road was recently opened to traffic throughout its entire length.

The line is almost 30 miles in length, and has four stations besides the terminals.

SHEN TUN-HO, CO-DIRECTOR OF IMPERIAL CHINESE MARINE AND RAILWAY BUREAU

The gradients are low, and curves are comparatively few. Japanese hardwood sawed ties and American steel rails, angle bars, and spikes were used. The three 54-ton locomotives, constituting the motive power, are of American manufacture. They bear, however, a conspicuous name plate in English and Chinese, setting forth the firm that sold them. The coaches, of which the road has twenty-two, are built on the corridor plan, and were constructed in Japan. They will each seat fifty passengers. The first class coaches are fitted with seats that imitate the American patterns, and are upholstered in imitation leather. The second class coaches have wooden benches. The couplers are of the American type. A standard train consists of fourteen coaches and a guard's van. The latter is the only one provided with brakes, the American air brake on the locomotive being relied on to handle the train. A number of small freight cars complete the list of the company's rolling stok. This road is the first in China to be built with Chinese capital.

Previous to the formal opening of the road the trains had been running for eight days (three a day each way), and the daily average of passengers carried was 2,000. The fares per ride are 67 cents gold for first class, and 27 cents for second class. The 30 miles are made in about one hour and thirty minutes.

At present the line is continually guarded by armed men stationed at intervals of about a mile. The engineers and conductors and the train dispatcher are Japanese, but the ticket collectors on the trains and all other employes are Chinese. The dispatching is done by telephone.

CHINESE CIGARETTE FACTORIES

The extensive bean-oil manufacturer of Newchwang a few months ago established, at a cost of $33,000, a modern cigarette factory. Two cigarette machines of Japanese manufacture were installed, and although the present output is but 100,000, these machines are capable of turning out 140,000 cigarettes daily. Two more machines, at an additional cost of $17,600, will soon be set up and double the present output

FAR EASTERN ENGINEERING, CONSTRUCTION, COMMERCIAL AND FINANCIAL NEWS

ELECTRIC RAILWAY, LIGHTING, POWER, TELEGRAPH LINES, ETC.

MANILA ELECTRIC LIGHTING.—The Philippine capital is now lighted by 244 arc lights recently installed, the incandescent street lights being removed.

NANKING ELECTRIC RAILWAY.—The first sod of the tramway at this point was turned by H. E. Tuan, Viceroy of Liangkiang province, on November 25.

WIRELESS FOR SINGAPORE.—Negotiations are now in progress which may result in the establishment of wireless stations at Colombo, Minicoy and Singapore.

SHIBUKAWA-NUMADA ELECTRIC RAILWAY.—The projected line between these two points in Gumma prefecture, a distance of 19 miles, is now under construction.

ELECTRIC PLANTS FOR U. S. FORTIFICATIONS.—Congress has been asked to appropriate 502,992 dollars to install electric plants at Manila, Subig, Honolulu and Pearl Harbor.

CANTON-KONGMUN TELEGRAPH LINE.—A message to the *China Mail* from Canton under date of December 11 announced the opening of telegraphic communication between these two points.

WIRELESS TELEGRAPHY IN CHINA.—Regulations have been drafted by the Board of Communications at Peking governing the introduction of an extensive system of wireless telegraph stations throughout China.

JAPAN'S IMPERIAL POSTS, TELEGRAPHS AND TELEPHONES.—The income from these sources for the next fiscal year is estimated at about 36,000,000 yen, an increase of 1,800,000 yen over the income for 1907.

TOKYO TRAMWAY MUNICIPALIZATION.—The Tokyo municipal council has decided to purchase the Tokyo Electric Railway holdings. The price named is 67,500,000 yen. It is expected that the transfer will be made in March.

WIRELESS IN AUSTRALIA.—The Postmaster General of the commonwealth has decided to invite tenders for the installation of wireless telegraph stations at every port on the coast of Australia for the purpose of communicating with passing steamers.

TELEGRAPH LINE TO TIBET.—The Viceroy of Szechuen is preparing a report upon the roads connecting Chengtu, Szechuan, and Lhassa via Tachienlu and to submit estimates on the cost of installing a telegraph line to the Board of Communications at Peking.

WIRELESS PROJECTED ACROSS THE PACIFIC.—The British Colonial office has announced that the establishment of a wireless telegraph system extending across the Pacific is entirely practical and that steps will soon be taken by the British government to install a system with stations at Vancouver, Fanning, Tongo group, Fiji, Ellice Island and Australia.

LARGE JAPANESE ORDER FOR ELECTRICAL EQUIPMENT.—The Kabushika Kwaisha Mihon Seiko Sho has placed an order with the Lancashire Dynamo and Motor Co. of Manchester, Eng., for the equipment of its generating station. This consists of three 1,000 Kilowatt generating sets of Belliss Triple expansion engines and compound interpole generators for three-wire supply at 440 volts across the outers, together with piping, condensers, switchboards, cables, etc., and over 300 motors have been ordered for driving the machinery in connection with the plant and machine shops.

ANGLO-JAPANESE HYDRO-ELECTRIC POWER CO.—A license was issued on December 6th, by the Minister of Home Affairs at Tokyo to this company which has been organized with a capital of 10,500,000 yen for the purpose of supplying electricity for power and light to Shizouka and other cities on the Tokaido by utilizing the cataracts of the Oi river. Of this power, 66,000 H. P. will be developed at Tamochimura; 27,000 additional at a point between Ikamamura and Hambaraumechi and 8,000 H. P. at Ushinakubi. The erection of the largest plant has been postponed but the work on the other two plants will commence in January this year. The estimate is placed at 10,000,000 yen for the construction of the two smaller plants. Half of the stock has been subscribed equally by British and Japanese capitalists.

RAILWAYS AND RAILWAY SUPPLIES

DEPOT AT CHANGCHUN.—This station was opened by the Japanese December 1.

AMERICAN RAILS FOR JAPAN.—An additional order for 15,000 tons of steel has been placed with the American Trust by the Japanese government.

KUANGSI RAILWAY.—A subsidy of one million taels has been authorized by the board of finance at Peking for the proposed Kuangsi railway.

PEKING-HANKOW RAILWAY.—Traffic on this line was interrupted by a break in the bridge near Sinyanchou, Honan, for about ten days last month.

KILIN-CHANGCHUN RAILWAY.—This line, which when completed will be 50 miles in length, will be commenced next March. The preliminary survey is now under way.

URGA KALGAN RAILWAY.—Engineers will be dispatched next spring by the Peking authorities to survey the route of the proposed railway between Urga and Kalgan.

NEW PEKING RAILWAY DEPOT.—The foundations of the railway depot at Chien-men, Peking, are under way. The contractors are Messrs. Adams & Knowles of Tientsin.

CHENGTING-TECHOW LINE.—The Board of Communications at Peking has authorized the survey of the proposed railway route between Chengting and Techow via Schichia Chuan.

CHINESE IMPERIAL RAILWAYS.—A dispatch from London announces the appointment of Manager Steel of the Caledonian Railway Co. as traffic manager of the Chinese Imperial Railways.

THE MANILA RAILWAY CO.—The traffic receipts for the week ending November 9 were $29,680 against $22,999 for the corresponding month, 1906, making an aggregate of $1,888,784 for the year.

AUSTRALIAN LOCOMOTIVES.—The Clyde Engineering Co. (Ltd.) of Granville, Sydney, has turned out four large freight engines and one passenger engine which have been accepted by the government.

KALGAN-KULUN RAILWAY.—The work of construction of this line will commence in the Spring, according to a report from Peking, and the capital not covered by interior loan will be subscribed by Mongolian princes.

NEW JAPANESE LOCOMOTIVES.—The Japanese Railway Bureau has ordered four new locomotives of high speed from the Kobe shops for the purpose of increasing the speed of the express trains on the Tokaida and Sanyo lines.

HONAN RAILWAY CONSTRUCTION.—Natives of Honan have notified Peking that the construction of the great railway through the provinces of Honan, Shensi and Kansu will be built through their province with local capital.

PAKHOI-NANNING RAILWAY.—A joint syndicate of Foreign and Chinese capitalists with a capital of Tls.5,000,000 is being organized in Canton with the purpose in view of constructing a railway between Pakhoi and Nanning.

SOUTH MANCHURIAN RAILWAY EXTENSION.—The Taotai at Yinkow has filed a protest with Peking against the extension of the South Manchurian Railway to that point. The railway officials continue their preparations however.

LUHAN RAILWAY PROFITS.—The report for the year contains the information that this line made a profit of over a million and one-half dollars. The freight carrying from Hankow gives the road a greater portion of its revenues.

KANSUH-SINKIANG RAILWAY.—The construction of a line between Kansuh and Sinkiang via Ili, one-third of the expense to be borne by the board of finance and the balance by the provinces interested, is being seriously considered at Peking.

CENTRAL MANCHURIAN SURVEYS.—The joint survey of the proposed Kirin-Chanchun line is expected completed in the Spring so that the construction will not be delayed. It is expected that later the line will be extended to I-Tung-Chow.

MACAO-CANTON RAILWAY.—Canton capitalists are anxious to construct the railway between Canton and Macao and have asked Peking to confirm the cancellation of the agreement with Portugal in connection with this proposed construction.

DOUBLING MANCHURIAN RAILWAY.—It is expected that the entire work of doubling the line from Tairen (Dalny) to Sukiantun will be completed by the end of 1908. The line is divided into 15 sections, ten of which are now in course of construction.

SOUTH CHINA RAILWAYS.—The Hunan Railway Co. is negotiating a loan of three millions from the Yuet-Han Railway Co. The Viceroy at Canton is in receipt of a petition asking for permission to construct a branch railway from Kong Mun to Fat Shan.

CHINA'S RAILWAY MILEAGE.—China's total railway mileage is 3,740 miles and is controlled by foreign nationalities as follows: Japan, 730 miles; Russia, 1831 miles; Britain, 725 miles; France, 50 miles; Germany, 343 miles. China controls but 61 miles of the entire system.

SHANGTUNG RAILWAYS.—The proposed line connecting the Shangtung coal mines with T'aierhchwang near the Grand Canal has not yet been surveyed. The construction of this road has been the subject of much agitation and the prospect for its early construction is not bright.

CHENTING-TAIYUAN BRANCH.—The board of posts and communications at Peking has reported that there will be a deficit for 1908 in the operation of this branch of the Peking-Hankow Railway owing to the undeveloped state of the country which it taps. This branch was but recently completed.

SIAMESE ROYAL RAILWAY SHOPS.—The contract for the construction of the steel wagon repairing shops at Bangkok has been awarded Messrs. Howarth Erskine (Ltd.). Over 500 tons of steel will be used in the construction and the shops when completed will be fitted with an electric overhead traveling crane.

GERMAN RAILWAY CONCESSION.—A movement is on foot among German capitalists to secure a concession from the Peking government to construct a railway connecting Tsinan and Kaifeng. The natives of Shantung and Honan are greatly interested in the project but as yet no protest has been filed.

N. S. W. RAILWAY COALYARDS.—Great activity is reported from North Carrington, Newcastle, N. S. W., in providing connection with the dyke there to relieve the congestion in coal traffic. The yards are being enlarged and already over 60 miles of main lines and sidings in the yards have been completed. Engine sheds are being built and additional earthworks made in order to provide space for 120 sidings which when completed will accommodate 5,000 coal cars.

PEKING-MENTOUKOU BRANCH.—The branch line of the Kalgan R. R. connecting Peking with Mentoukou, a distance of about 15 miles, was opened to traffic November 21, as far as the terminal station at Sanchialien. The road will be extended farther over the Huncho, a distance of five miles to Mentoukou, next year. The road will be utilized especially for the transportation of coal from the many mines in the foothills and it is expected that the country thereabouts will be developed into an attractive summer resort.

MONGOLIA RAILWAY DEVELOPMENT.—A syndicate with a capital of Tls. 2,000,000 has been organized by Chinese capitalists for the purpose of developing Mongolia, and a general survey of the territory has been ordered with a view to the construction of railway lines and otherwise to develop the country. It is understood that a secret survey has been made by Russian engineers of a line of railway from Tomsk tapping one of the richest sections of this territory, but the Chinese authorities are opposing any Russian enterprise in that direction.

WOODS-GILBERT RAIL PLANER.—Two Melbourne engineers have invented a rail planer designed to remedy the defects caused by wear to tramway and railway tracks. According to the *Australasian Hardware and Machinery*, it is claimed that the apparatus will restore a worn out tram track at a cost of less than £150.00 a mile. It will cover 12 miles of track an hour and is provided with its own turntable. With heavy headed rails the top-dressing might be repeated several times with great saving. The machine is manufactured in Melbourne.

KOWLOON-CANTON RAILWAY.—The report of the department of public works of Hongkong contains a resume of the work on the Kowloon-Canton Railway up to May 18th, 1907, under its supervision. This shows 2.58 miles of embankment and .17 miles of cutting completed to formation level and .57 miles of embankment and .07 miles of cutting partially completed. Channels to the length of about half a mile were also constructed for the proper diverting of water from the streams that crossed the route surveyed, obviating the construction of bridges.

PUBLIC AND PORT WORKS, WHARVES, DOCKS, ETC

PHILIPPINE FORTIFICATIONS.—Congress has been asked to appropriate $6,488,000 for fortifications in the islands.

YOKOHAMA IMPROVEMENTS.—The committee on improvements has recommended the expenditure of Yen 400,000,000 on the harbor and public works of this city.

TSURUGA HARBOR IMPROVEMENTS.—The sum of 160,000 yen has been appropriated by the Japanese authorities to be expended in this work during the year 1908.

THE FOOCHOW DOCKYARD.—The Ministry of Finance has sent Tls. 600,000 to the Viceroy of the Min-che provinces for the reorganization of the Foochow Dockyard.

CANTON GAS WORKS.—A company is being formed, says the *China Mail*, for the purpose of supplying Canton with gas. A petition is now in the hands of the department of agriculture asking for a franchise.

PARRAMATTA, N. S. W., SEWER SYSTEM.—This system will cost when completed in the vicinity of £30,000. The construction will require 117,142 feet of earthenware pipes, 2,696 feet of Monier pipes and 628 manholes.

NEWCHANG IMPROVEMENTS.—The Chinese Chamber of Commerce at this port are agitating modern improvements and a system of drainage is being inaugurated to be followed by the macadamizing of the principal streets.

NAYOGA'S NEW PORT.—The opening of the new harbor at this port was celebrated last month. This extensive improvement was paid for by the people of Nayoga and Atsuta, its port, which together marshal a population of 314,000.

CHINKIANG WATERWORKS SYSTEM.—A Chinese company is being organized to install a waterworks system in Chinkiang. While the plans are not yet complete, it is understood that a foreign engineer has been consulted by the promoters.

DAVAO DOCKS.—Engineer Vance of the Moro province has completed the survey of the new dock site at Davao. The main pier will be 900 feet long and the "T" will be 36 by 200 feet. The road connecting the port with the town has also been surveyed.

FAR EASTERN ENGINEERING, CONSTRUCTION, COMMERCIAL AND FINANCIAL NEWS

ELECTRIC RAILWAYS, LIGHT, POWER, TELEGRAPHS, ETC.

PENANG RAILWAY OFFICES.—These offices are to be ventilated and lighted by electricity.

WIRELESS PHOTOGRAPHY.—Advices from Paris announce the successful transmission of a photograph by wireless telegraphy.

SENDAI ELECTRIC POWER COMPANY.—A Japanese company with a capital of yen 200,000 has been organized to establish a plant at Sendai.

TIBET-PEKING TELEGRAPH LINE.—The Chinese government has authorized the construction of a telegraph line connecting Peking with Lhassa.

SIAM ELECTRIC RAILWAYS.—This company is now watering the roadways along which its lines are laid by special contract with the Siamese government.

BANGKOK DOCK LIGHTING.—The Bangkok Dock Co has installed the economic safety gas lighting system on their docks. The plant has a capacity of 1,000 candle power.

TOKYO OVERHEAD ELECTRIC.—A project is on foot, in which Sir Clifton Robinson is interested, to raise 27 million yen for the purpose of constructing an elevated electric railway connecting Shinagawa with Senju.

MONGOLIA TELEGRAPHS.—The chiefs of the Mongol tribes have raised Tls. 830 000 and have petitioned the Board of Posts and Communications at Peking to send some capable engineers to take charge of the construction and installation of a complete system of telegraph lines, in that territory.

HONGKONG TRAMWAY LINES.—The correspondent of the *North-China Daily News* at Hongkong writes that the present tramway to the Peak is not capable of handling the traffic and intimates that if the company that proposed the new tram line had not been absorbed by the present operating company, the projected second line might now be relieving the congestion.

F. M. S. GOVERNMENT TELEGRAPHS.—New regulations were put in force January 1st, providing for the payment of tolls in stamps, and the following rates are charged: To any office in Penang, Province Wellesley, Malacca or the Federated Malay States urgent, per word 9 cents; ordinary 3 cents; with a minimum charge per message of 63 cents, urgent, and 21 cents, ordinary.

AMERICAN KOREAN ELECTRIC CO.—This company operates 12 miles of track in Seoul and is equipped with 370 passenger and 18 freight cars, according to a late report. The net earnings for the fiscal year 1906 were $25,324, this amount being about a quarter of the gross earnings. Few accidents occur on this system, the company having inaugurated a reward to employees in the form of a bonus paid at the end of each month during which no accidents occur.

RAILWAY AND RAILWAY SUPPLIES

SEOUL-WIJU RAILWAY.—The ceremony of the opening of this line will take place at Ryongsan, April 1st.

SANYO RAILWAY PURCHASE.—The purchase price of this road to the Japanese government is fixed at yen 80,416,946.96.

CANTON RAILWAY.—The Board of Communications has directed the company to begin construction of the line immediately.

SIAMESE RAILWAYS.—The Eastern line to Patriew and the continuation of the Northern line to Pitsanulok are now open to traffic.

KOISHIKAWA LINE OPEN.—The section of the Tokio Railway between Omagara and Edogawa was opened to traffic last month.

YOKOHAMA-HACHIOJI-RAILWAY.—The construction of this line is progressing rapidly and it will be completed by the end of March.

WAGON LITS TRAIN SERVICE.—The Tientsin branch of Messrs. Shewan Tomes & Co. has taken over the agency of this service there.

BRITISH NORTH BORNEO RAILWAYS.—There are over 125 miles of railway in this territory in operation and more than that length projected.

F. M. S. RAILWAYS.—The construction of the new depot at Ipoh is progressing rapidly and the rails have been laid for some distance on the Tronoh extension.

ILI-LANCHOW RAILWAY.—An effort is being made to authorize a loan of Tls. 1,500,000 for the purpose of constructing a road between Ili and Lanchow, Kansu.

OTARU RAILWAY MATERIAL.—A cargo of railway material arrived on the S. S. Katanga for the new line under construction in Yezo. Over 1,000 tons were billed for Otaru.

INTERNATIONAL SLEEPING CAR CO.—The Osaka Shosen Kaisha has made a special contract with this company to open a steamer and train connection on the Vladivostok line.

JAPANESE RAILWAY BUREAU RECEIPTS.—For November, yen 6,133,461 from all sources, an increase of yen 2,691,709 compared with the income for the corresponding term 1906.

AMUR RAILWAY CONSTRUCTION.—The Russian government has decided to undertake the work of construction itself and has abandoned its original plan to give the work over to contractors.

THE SUNNING RAILWAY.—The section of this line between Sunning and Kungyikfu was opened to the public January 4th. Work has also commenced on the section from Sunning to Chunglan.

NEW INDIAN RAILWAYS PROJECTED.—Surveys are being made for a line connecting Phaphamu and Rai Bareilly about 75 miles in length which will establish the connection between Lucknow and Allahabad.

PROJECTED JAPANESE RAILWAYS.—Ten primitive railway lines, a total length of 300 miles, await official approval. Two of the lines have their terminals in Tokio and connect that city with Shibukawa and Kamada.

SAMARANG STEAM TRAMWAY.—The tramway connecting Samarang and Joana in Java has just completed its 25th year and it is the purpose of the company to distribute 20,000 guilders among the lower grades of employees.

MUKDEN-ANTUNGSHIEN RAILWAY.—The South Manchurian Railway loan of two million yen for the purpose of constructing a branch connecting Antung and Mukden has been authorized by the Department of Communications.

CANTON-HANKOW RAILWAY.—It is reported that a large Chinese Syndicate has offered to finance the construction of the Chengtu-Hankow-Canton railway and will not demand any return on the investment until the road is operating.

INSULAR COAL COMPANY RAILWAY.—This company has made application to the Philippine Commission for a franchise to construct a railway from the shore at Dànao, Cebu, to the coal deposits at Camansi, a distance of 12 kilometers.

SANYO RAILWAY PURCHASE.—The price of purchase arrived at for the transfer of this road to the Japanese government has been fixed at yen 82,302,902, which includes the line, rolling stock, furniture, buildings and ships and other equipment owned and operated by the company.

PROPOSED MONGOLIAN RAILWAY.—The viceroy of the Shen Kan provinces has sent a memorial to Peking for approval of a scheme to connect Ili, Mongolia and Lanchou, the capital of the province of Kansu, by a railway. He estimates the cost of this project at Tls. 1,500,000.

INTERNATIONAL SLEEPING CAR CO.—This Belgian company has decided to establish a branch office at Yokohama for the purpose of handling its Siberian business more expeditiously. The announcement is made that other branches at different points in the Far East are contemplated.

KONGTSUN-SUN KAI RAILWAY.—The Canton correspondent of the Hongkong Telegraph writes that the directors of the Canton-Hankow Railway have decided that the two sections from Kongtsun to Kwok Tong and from there to Sun Kai now complete will be opened to traffic at an early date.

RAILWAY TO NEWCHWANG.—The Peking authorities are reported to be considering the advisability of constructing a railroad between Tangchow via Shanhaikwan to Mokaoying, a point near Newchwang. Engineers have been dispatched to examine the country with a view to ascertaining the best route.

YUEN-HAN RAILWAY.—The correspondent of the North-China Daily News writes that the construction work is being carried on into Honan Hupeh has raised the money necessary to carry the road as far as Changsha and from there to Chuchao The Pinghsiang mines have already been connected with Chuchao by rail.

SOUTHERN MANCHURIAN RAILWAY BRIDGES.—Steel for the construction of permanent bridges has arrived from America and work will commence at once with a view to completing the new bridges by the end of June. The original bridges were destroyed by the Russians during the war and those replacing them were of a very temporary character.

NEW CHINESE RAILWAY.—The Board of Communications has concluded plans for a Railway from Taiyuenfu to Tungkwan on the bank of the Yellow River and thence to Sianfu and Chiayukwan, connecting with the line from Sinkiang to Tibet. The governors of the provinces of Shansi, Kansuh and Szechuan have been instructed to devise means to carry out this scheme.

TO USE MOTOR CARS.—The Japanese Imperial Railway office intends to utilize motor cars to connect different sections of the Railway system if feasible. Two motor cars ordered by the Kwansai Railway Co. arrived at Osaka at the beginning of the month and will be used between Sakarano-miya and Kidzu as an experiment. If successful, other motor coaches will be introduced.

IMPERIAL CHINESE RAILWAYS.—A battery of six verticle multitubular boilers have been ordered by the Imperial Railways to be used in supplying power for the pneumatic and other machinery used in the construction of the Lanchou Bridge in the interior of North China. The boilers were ordered in this form for the purpose of meeting unfavorable conditions of transportation.

TIENTSIN-YANGTZE RAILWAY LOAN.—This loan agreement between the Waiwupu and the Anglo-German Syndicate was signed January 13. The loan amounts to $25,000,000 to be issued within one year at 93 and to bear interest at 5%. The length of the line is 675 miles. The sovereign rights of China are recognized and full control is vested in the Chinese government. It is expected that the line will be completed within four years.

SIAMESE RAILWAYS.—The new line to connect Bangkok with the mainland opposite Penang and the F. M. S. Railway system is now being surveyed and will be under control of British officials. The line connecting Bangkok with Chiengmai and the Burma frontier is progressing slowly but surely owing to the difficult nature of the country through which it is being constructed. This line is under the control of German officials as well as the 264 kilometers to Korat.

RAILWAY CITY NEAR MUKDEN.—The South Manchurian Railway Co. proposed expending yen 8,000,000 for the purpose of establishing a city immediately west of the city of Mukden. Report has it that the company has 650,000 tsubo of land in that vicinity which it will devote to the town site. It will build a new depot within the city and build a wide thoroughfare to the old city of Mukden. The land within the new city limits will be leased to private persons at a reasonable rental.

MANCHURIA RAILWAY SUPPLIES.—The South Manchuria Railway's order with the American steel manufacturers was for 208 engines, 80 passenger cars and 2100 trucks. Of this order 26 engines and 660 cars and trucks have been delivered, the balance being expected in August, 1908. The rolling stock now in use is adapted to the narrow gauge and consists of 217 engines, 56 passenger coaches and 3,136 trucks. This rolling stock will be sent home as soon as it is replaced by the standard gauge.

CANTON-HANKOW RAILWAY.—Latest advices are to the effect that structural work on this road will be pushed in the provinces of Kuangtung, Hupei and Hunan, simultaneously and that the entire project will be completed within three years. It has been practically decided to build the terminal station at Wuchang instead of Hankow while the terminal of Szechuen-Hankow trunk line will be constructed at Hanyang, both of which will be connected with the Peking-Hankow line at Hankow by two iron bridges over the Han River.

PUBLIC AND PORT WORKS, DOCKS, WHARVES, ETC

KRIAN IRRIGATION WORKS.—The estimated revenue from the works for the year has been placed at $40,000 dollars.

NEW ENGINEERING FIRM.—Messrs. Brighton, Malcolm & Co. is the name of a new engineering firm located at Shanghai.

KUALA SELANGOR IRRIGATION.—The Krian irrigation system is to be duplicated for Kuala Selangor if the movement among the planters and officials there is carried out.

IRRIGATION FOR HEMP.—Advices from Davao are to the effect that the hemp returns from that section have been greatly increased by the introduction of irrigation. Several systems are projected.

KUALA LUMPUR WATER WORKS.—The sum of $300,000 will be expended on the extension of the Kuala Lumpur system during the year. This is part of the total estimate for this work of $700,000.

OMUTO HARBOR WORKS.—The Mitsu colliery is making rapid headway in the work of improvement of the harbor. The pier is not yet completed but the harbor will be opened for special export of coal by the company, April 1st.

SOURABAYA NAVAL DOCKS.—The Netherlands India government has arranged for extensive dredging and harbor improvement works at Sourabaya in order to make the harbor available to large vessels and will very probably complete plans for a large naval dock.

SIAM PUBLIC WORKS.—A program of roadbuilding is under consideration by the public works department of Siam which includes a road from Raheng to Chiengmai. The survey of Eastern Siam with a view of connecting the most important points by good roads is also under way.

CALCUTTA WATER SUPPLY.—A scheme has been proposed to increase the capacity of the water supply for Calcutta to 30,000,000 gallons a day and provision for expansion to 40,000,000 a day. According to the promoters, this project would take over five years to complete.

FORMOSAN IRRIGATION.—The Japanese government is considering the development of irrigation systems on a large scale in Formosa and when completed will cover an area of 750,000 acres, a portion of which is already benefited by an old Chinese system. Japanese engineers have been sent to America to study the methods employed there.

SINGAPORE RIVER IMPROVEMENT.—A bill has been introduced in the Legislative Council to provide an appropriation for the reconstruction of the revetment walls and otherwise put them in the best possible condition. The bill also provides that the cost of the work be borne equally each by the Colony, municipality and property owners.

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THE FAR EASTERN REVIEW

GEO. BRONSON REA, M. E.

PUBLISHER AND EDITOR

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WINDMILL IRRIGATION

Wind power for the purpose of pumping water to supply irrigation systems may yet serve as the solution of a problem that confronts agriculturalists in many sections of the East where gravity supply is impossible or power too expensive. *The Peking and Tientsin Times* of recent date devotes some space to the experiment being made with success in the public gardens of the French concession at Tientsin. The *Times* says:

"The method of irrigation by means of windmills, which has been adopted in connection with extensive gardens in the French Concession, has proved so successful that another windmill has been erected to assist in the works. This form of water raising appliance is almost unknown in this district, and until the completion if the present one there was only one windmill in use. The water is drawn from the Yang-kin-pang Creek, raised to tanks ten or twenty feet high, and from there it is led throughout the grounds to hot-houses, etc., where required. In addition to their utility, the windmills form a pleasing addition to the landscape."

In this connection an interesting article on the possibilities of irrigation by the use of windmills has been written by Consul Vollmer of Tsingtau. His comments, no doubt, would apply to other sections of China and the East and the advice if followed might serve to mitigate the suffering from famine in sections subject to drought and where large irrigation plants might be beyond the means of those interested. The consul's article is written with a view to encouraging trade in that line of manufacture, but the trader, while serving his own interests has ever been the pioneer missionary, carrying the gospel of modern method into the wilderness to help overcome the obstacles that nature has placed to disconcert and discourage the struggling native industrial. Consul Vollmer says:

"On the whole there can be said to be little or no irrigation in this part of China, as the rains come in the summer months when most of the crops needing water in large quantities are maturing. Wheat and cereals are harvested just before the wet season, and kauliang grows without more attention after the rains, having passed the stages where much moisture is necessary. There are, however, a large number of agricultural products which would probably be classed as garden truck which need constant and careful attention. If the rains are a little delayed or lacking, as is the case this year, all of these plants have to be regularly watered. To accomplish this a water hole is dug in some shallow river bed and the moisture carried to the fields in American coal-oil tins. The well of course is lost the next time the river rises.

"A few years ago this method of irrigation was perfectly satisfactory, but conditions have altered now, an dthe time seems to be rapidly approaching when the work will be done by pumps, windmills, and ditches. A few years ago the field laborer had nothing to do when his crop was growing satisfactorily and could well spare the time to water it when there happened to be a drought. At present there is a great demand for coolie labor in and about Tsingtau for all sorts of street, harbor, construction, and fortification work, and on railroad construction work in the interior. It is thus evident that instead of sitting down and watching his crops mature he can spend a day walking to Tsingtau or some other place where there is work, spend a few weeks at remunerative labor and return home to attend to his harvest.

"If cheap pumps or small windmills were introduced, a whole village might unite in purchasing one, and then one man could easily do what it now takes dozens to accomplish. A well once dug and properly boarded up under a pump or a windmill would not have to be redug after each rain; women and children could keep the irrigation ditches in repair, and the money earned by the men whose labor would no longer be needed in the fields would repay the cost of installing the apparatus in a very short time. Pumps for the market should be solid, heavy affairs, while the windmills should be a small variety, preferably iron or steel, mounted on a steel framework, and of the simplest possible mechanism. To introduce these goods, would of course require the attention of a man on the spot and could not be accomplished by correspondence; but once the first few specimens were in operation, there would undoubtedly be a large and steady demand."

THE CANTON-KOWLOON RAILWAY

The recent discussion over the appropriation to cover the expenditure of the present year in the construction of the Canton-Kowloon line, by the members of the legislative council of Hongkong, developed the optimistic feeling that prevails regarding the early completion of the British section. The progress made during the last year has been highly satisfactory and according to Governor General Lugard's estimate, the entire lines will be completed in May, 1910, at the present rate of construction and it is his belief that in all the cost of the section complete will not exceed £1,000,000. This will be the terminal section of the main line that connects Peking and Kowloon a distance of 1,500 miles and its importance to Hongkong cannot at the present time be appreciated. Its completion assures to Hongkong the control of the trade of a vast territory and its conception reflects the greatest credit on the promoters.

The *Review* does not propose to indulge in the details of the history or the work already accomplished, that being reserved for a future number, but we believe that no enterprise affecting a port of the Far East could have greater significance than the Canton-Kowloon section in its relation to the future of Hongkong. The Chinese section construction has not been so satisfactory as desired and Hongkong watches with great interest every promise of effective activity. The progress made on the British section compared with the Chinese section indicates how much more satisfactorily the work would have progressed on the latter with foreign supervision. Many natural obstacles have to be overcome on the section, and disappointments endured, but these have not discouraged the colony by any means. The work is now mapped out carefully and the survey completed so that every step taken henceforth will count. The tunnel which is the most difficult engineering problem of the work of construction will be 7,156 feet in length, of which 2,242 feet of heading were completed at the end of the year and 465 feet of the lining. Since that time an average of 43 feet has been made and greater progress anticipated as the equipment operates to its greatest capacity.

In this connection the *North China Daily News* says:

"Whatever heartburnings Hongkong may experience in learning that by the end of the current year it will have spent on its railway (if present estimates are not exceeded) a sum of $6,834,061, or more than 25 per cent over and above the original estimate for the completed line, it has one consolation. The railway now being built is as sound an undertaking as human forethought and engineering skill can make it. In spite of the additional expenditure entailed, all short-sighted suggestions to be content with a second-rate railway are being rejected. In no particular would these be more dangerous than in respect of matters connected with station terminus, workshops, facilities for shipping and wharfage; and Sir F. Lugard wisely predicated that there should be no failure to realize the potentialities in this particular of a line that is to be the terminal section of a railway, 1,500 miles long, stretching from Peking through the undeveloped regions of central China to the great southern mart of Canton. But even when the work of construction has been placed on a sound basis and is proceeding smoothly, there remains the not unimportant task of effecting a joint working agreement with the Chinese section from Canton to the Kowloon border. There is no reason to believe that an arrival at a *modus vivendi* will present insuperable difficulties, but it is natural that the Colony should wish to see the matter definitively arranged. The survey on the Chinese line, however, has only recently been completed, and the first sod is not likely to be turned before April. Meanwhile the Chinese authorities have several preliminary questions to settle with regard to the administration of the line and to local control, and until these points

RAILWAYS IN CHINA

Tsen Chun-hsuan has memorialized the Throne suggesting the advisability of having China's railways under proper unified control with a proper system. The Board of Communications, after having perused the memorial, by Imperial order sent in its views to the Throne. The views are divided into three sections. One.—Centre of all the railway systems in China. Two.—Four Trunk Lines. Three.—Branch Lines.

I.—Centre of the railway systems in China. —It is stated that since the Tientsin Shanhaikuan Railway, the Railway carrying the mining products of Kaiping Coal Mines, and Peking-Hankow line are the only lines of importance at present and that Hankow should be made the centre of all the railway systems in China. Such is the majority of opinions expressed by people who talk about the railway administration of China. There are others who maintain that Hsiangfu is the best place for such a centre. From political geography these views are not to be adopted. The place which is the capital of the sovereign of the state should be the centre of the systems. In ancient times the centre of traffic was always at the centre where tribute was sent from the east, west and south, and Peking should undoubtedly in any case be the centre of the railway systems of China.

II.—Four Trunk Lines.—What we call four trunk lines are—

1.—Southern.—When the Peking-Hankow Railway connects with the proposed line between Hankow and Canton, when it is completed, it will be made the Southern Trunk line by connecting Wuchang and Hankow by ferry boat.

2.—Northern.—The line to the North is one between Peking and Kalgan and regarding the proposed Mongolian Railway made by Prince Su the Board has already mentioned that the Peking-Kalgan line should be extended to Kulun (Urga) and then to Kiachta and this line will become the Northern Trunk line.

3.—Eastern.—The line to the East is one called Kuanneiwai line or the line between Tientsin to Hsinmingtung together with the line between Hsinmingtung and Mukden which has been restored from Japan. Regarding the proposed line of the Hehlungkiang province made by Cheng Teh-chuan, the governor of that province, the Board of Communications has stated that the line should be extended to Aigun via Chiaonan, Tsitsihar. When this line is completed this may be made the Eastern Truuk line.

4,—Western.—The line between Chengting and Tayuen will be joined with the Tungpu Railway and then it will further be extended to the west with the line between Tungkuan and Lanchow as proposed by the ex-Governor of Shensi, Tsao Hungksun, and thence to Ili. When this is completed this may be the Western Trunk line.

III.—Branch lines.—The branch lines of the Southern Trunk line.

1.—Peking to Chengchow and thence from Kaifeng-fu, Honan, to Anhwei.

2.—From Hsinyangchow to Kiangsu via Kiangpu.

3.—From Hankow to Hsianfu.

4.—From Wuchang to Kiangsi.

5.—From Hunan to Kueichow.

6.—From Canton there will be four branch lines.

a.—Canton-Kowloon.

b.—Canton-Macao.

c.—Huichow-Chaochowfu-Amoy.

d.—Wuchow-Kueilin.

All the lines in Honan, Anhwei, Kiangsu, Chekiang, Kiangsi, Fukien, Hupeh; Hunan, Shantung, Kueichow, Kuangsi and Kuangtung will be included in these branch lines.

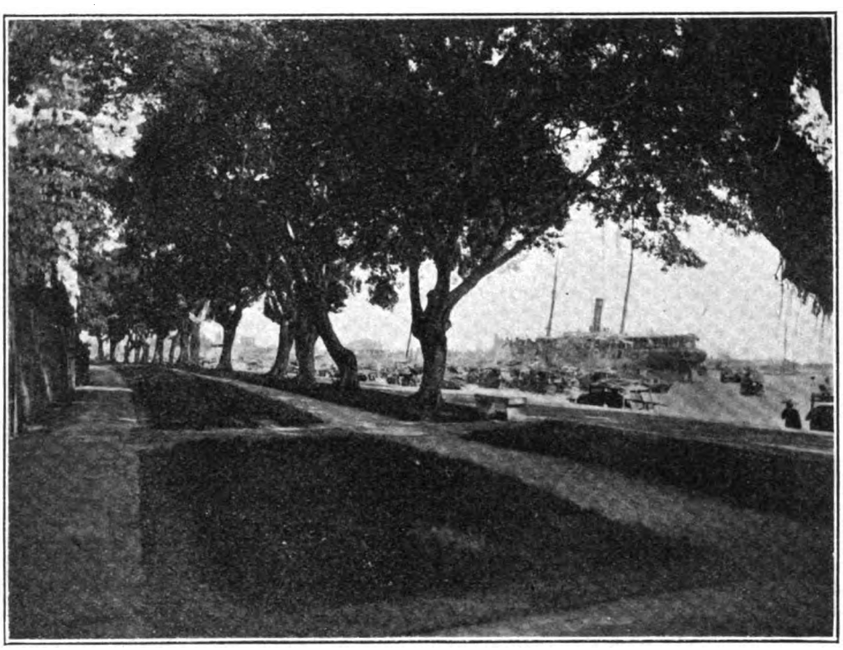
2.—Branch lines for the Northern Trunk lines.

When the line reaches Kalgan from Peking, as Cheng Hsun, the Lieutenant Military Governor of Chahar, has pointed out, there should be two branch lines, namely: one to Jehol towards the east to connect Kalgan with that place and another to Suryuan (Kukukoti) towards the West to connect the same with Kalgan and when the line reaches Kulun or Urga it will again be divided into two branches, namely: to Outer and Inner Mongolia. All the lines in Mongolia and Jehol will be included in the branch lines of the Northern Trunk line.

3.—Branch lines for the Eastern Trunk Line.

At Tientsin—Tientsin-Chinkiang Railway via Kiaochow and Tsinanfu. At Kaopangtse—a line between Yingkow and Port Arthur.

At Mukden the line runs towards the east to join the Russian Manchurian Railway. The lines in Shantung, Mukden Kirin and Hehlun-kiang are to be included under this trunk line.



LOOKING DOWN THE BUND, BRITISH CONCESSION, SHAMEEN, CANTON

4.—Branch lines for the Western Trunk line.

At Taiyuan a line to Tatung to connect with the Kalgan Suiyuan line. At Pingyang a line to Tsechow to connect with the Tsechow-Taokao line. At Tungkuan a line to Loyang to connect with the Loyang Honan Railway. At Hsian a line to the northwest via Pinglin to Ninghsia, another to the southwest via Hanchung to Chengtu which will join the Szechuan-Hankow Railway on the east and the Yunnan Szechuan Railway on the South and thence to the Yunnan-Annam and the Yunnan-Burma lines. On the west at Lanchow lines to Tsingkai (Kokonor) and Thibet will be built as branch lines. The lines in Shansi, Shensi, Kansu, Hsinchiang, Szechuan, Yunnan, Tsinghai and Thibet will be included under this Trunk line.

The order of building these lines should be arranged by considering both military and commercial convenience. On the northwest it is necessary to connect with the borders for the benefit of military purposes and also to connect with the sea coast on the southeast for the convenience of commercial purposes. If provincial governments should be established for Mongolia and Thibet it will become very important to build lines to Urga and Thibet urgently and leave Tsinghai and Jehol as secondary. For the purpose of trade development on land and sea the Hankow-Canton line is the most important to be speedily completed and the Szechuan-Hankow and Yunnan-Szechuan will be placed as secondary. Recently the railway affairs in Kiangsu, Anhwei, Kiangsi and Fukien are mostly dealt with by the local natives by raising funds themselves. In Yunnan, Kueichow, Shansi and Shensi viceroys and governors are earnestly planning railway affairs but owing to the lack of funds they are not much facilitated. It is necessary to build railways for trade with the profit of which military lines should be built. In the northeast it is easy to raise funds from natives but in the northwest it is necessary to raise foreign loans. The board of communications is now collecting the plans of railways from all the provinces and compiling one complete map showing all the complicated lines in one. When the affairs of the board will be in proper working, order deputies with engineers will be appointed to complete this map with a record of the circumstances and then the order of building will be properly decided. When such plans and maps are completed they will be duly sent to provinces to enable them to report on the progress.—*China Mail*.

CHINESE REGISTERED MAIL

Provision is made by the Imperial Chinese Postal Department for the recovery of the value of registered mail lost in transmission, provided that it be insured. The regulation in this regard reads:

"The sender of a parcel may provide for full compensation, in case of its being lost, by insuring it. For domestic parcels of the value of $30 and more, and of domestic and international parcels containing gold and silver ware watches, jewellery, and precious stones, insurance is compulsory, but may not exceed $200 Mex. in the case of domestic parcels, and in the case of international parcels such sum as has been fixed by the country of destination. The fee for domestic insurance is 1 per cent. of the amount insured, with a minimum charge of 10 cents; for international parcels an additional fee is chargeable according to the route of transmission and the country of destination. Over-insurance is a bar to compensation."

FAR EASTERN ENGINEERING, CONSTRUCTION, COMMERCIAL AND FINANCIAL NEWS

ELECTRIC RAILWAYS, LIGHTING, POWER, TELEGRAPH LINES, ETC.

YINGKOW ELECTRIC LIGHT SYSTEM.—The installation of the plant by the Yingkow Water Works and Electric Light Co. is practically completed.

KONGMOON ELECTRIC LIGHT AND WATERWORKS.—A company with a capital of $600,000 has been formed to supply Kongmoon with an electric light system and also a system of water supply.

WALLSEND TRAMWAY.—The construction of an extension of the present system from Wallsend to West Wallsend, New South Wales, a distance of eight miles, has been authorized by the parliament and the cost is estimated at £37,055.

AUSTRALIAN GOVERNMENT CABLES.—Failing to come to a reasonable agreement with the present cable companies in regard to the purchase of their lines, the Australian government has advertised for tenders for the installation of two cables connecting Victoria and New Zealand.

TIENTSIN TRAMWAYS.—The operations of this company have been very successful and an effort is being made to secure permission to double its lines in different sections in order to handle the traffic. According to the *Peking and Tientsin Times* the 13 cars in operation earn on an average, $1000 a day.

JAVA-COCOS CABLE.—The laying of this cable which will connect Batavia with the southern point of the Cocos Islands is being laid. The distance is 600 miles and the depth of the ocean between 14,000 and 18,000 feet. The course of the cable will take the direction of Prince's Island in Sunda Straits.

MANILA ELECTRIC LIGHT RATES.—The appointment of a commission has been authorized by the Philippine Assembly to inquire into the present rates for electric light and power charged by the Manila Electric R. R. & L. Co. in the city of Manila and to make such recommendations as it may deem advisable.

BURMA MOTOR TRANSPORT CO.—This is the title of a new company being organized at Moulmein with a capital of Rupees 1,50,000 for the purpose of taking over the Moulmein and Muden Motor and Transport Co. and to extend its service to other districts in Burma. This company will carry passengers and freight.

PARIS-NEW YORK MOTOR RACE.—Eight competitors have been enrolled for the race around the world in motors: four are French, two American; one German and one Portuguese. The route is from Paris via Boulogne, Liverpool, New York, Alaska, the frozen Behring Straits, Siberia and through Europe back to Paris.

TELEGRAPHS IN CHINA.—At the end of 1906 the Imperial Chinese Telegraph administration had a system length of 22,419 miles, with 34,473 miles of wires, and 946 nautical miles of submarine cables. Offices numbered 379, of which 62 were open for day and night service, and 317 for day service only. The number of instruments in actual use was 768. The staff of the head office in Shanghai numbered 67, and the general staff 3,175, while inspectors, linesmen, &c., totalled 2,400. In addition there are many provincial lines, usually constructed by the administration, worked and managed independently by the provincial authorities. The telegraph companies having connections with China are the Great Northern, Eastern Extension, German, Dutch, and Commercial Pacific, while a French cable connects Tourane with Amoy, a German cable Shanghai with Kiaochow and Chefoo, and a third cable, partly Chinese, Chefoo with Port Arthur. The last was cut during the war between Japan and Russia, and is not yet repaired. China has also frontier connections with Burma, Indo-China, and Russian Siberia.

RAILWAYS AND RAILWAY SUPPLIES

OFU-KARUYA LINE DOUBLED.—This work is now complete and traffic opened under the new conditions.

YUNNAN-LOKAI RAILWAY AGITATION.—The natives of Yunnan are agitating the purchase of this line from the French syndicate when completed.

HARBIN-TSITSIHAR-AIGUN RAILWAY.—It is announced that China has concluded arrangements for the redemption of this line from the Russians.

SANYO RAILWAY PURCHASE.—The purchase price of this line which will soon be taken over by the Japanese government has been fixed at 80,416,841 yen.

MONO-RAIL IN INDIA.—The Punjab government has authorized the extension of the Mono-railway now operating between Sirhind and Bassein to Marind.

HONGKONG CANTON RAILWAY.—The sum of $4,250,000 has been appropriated by the Hongkong Legislative Council to be used in construction work on the line for the year 1908.

JAPANESE RAILWAY LOAN.—An effort is being made to float a loan of 1,989,000 yen to construct a branch of the South Manchurian railway connecting Mukden and Antanshien.

KWANGSI RAILWAY PROJECTS.—The expenditure of one million taels has been authorized by Peking to prospect and survey the route of the railway line to be built by the Kwangsi Railway Co.

HÒNAN RAILWAYS.—The surveys of the proposed lines in this province are now under way and arrangements are said to have been concluded for the financiering of the enterprise with Chinese capital.

TAIYUAN-PINGTING CHOW RAILWAY.—A French loan is being negotiated for the sum of 1,700,000 francs to finance the project which has for its object the transportation of coal between these two points.

CANTON-HANKOW RAILWAY.—Construction work was renewed immediately after the Chinese New Year, and during the holidays the section between Fatshan and Canton was continually in operation with exceptional returns.

AMOY RAILWAY.—The first engine for this line arrived from Germany last month. No rails have yet been laid but the work of construction is now under way. The engine will be used on construction, which accounts for its early arrival.

JAPANESE LOCOMOTIVE WORKS.—The government has decided to establish a large factory for the construction of railway rolling stock at Kobe in view of the extensive projects in the empire so as to avoid expending money abroad for this equipment.

KOREAN RAILWAYS.—With the completion of repairs to the Seoul-Wiju Railway in April, the construction of the Yalu bridge will be commenced and the reconstruction of the Seoul-Chemulpo Railway for the purpose of reducing the number of curves, continued during the year.

AMUR RAILWAY CONSTRUCTION.—The survey of this line, which when completed will be 1,361 miles in length, was practically finished in December and there is prospect that the Russian government will give the project the necessary financial support to have the line in operation in 1912.

BURMA LINES PROJECTED.—The prospect for the early construction of the lines to Myawaddi and Ye is not bright but it is believed that as soon as the older projects are further advanced connection with the Siamese lines will be made by way of Myawaddi although the prospect for the successful operation of the line to Ye is brighter.

CHEFOO-WEI HSIEN RAILWAY.—The *Chefoo Post* announces that there is prospect of securing government aid to carry out this project. Twenty Chinese have subscribed 50,000 taels each to further the scheme and at a meeting of these interested at Chefoo, the site of the station there and other details were discussed which indicates that prospects are brighter.

SHIMONOSEKI RAILWAY BRIDGE.—The professor of the Imperial University at Tokyo has reported that a railway bridge across the Shimonoseki Straits is feasible and would cost in the vicinity of 10,000,000 yen. This construction would serve to make the through railway traffic possible but on account of the national finances will have to be postponed indefinitely.

TIENTSIN-YANGTZE RAILWAY.—The conclusion of the loan agreement with the Anglo-German syndicate has given satisfaction. Full control by the Chinese government as guaranteed has had a salutary effect on the Chinese agitation against foreign loans. The line when completed will be 675 miles in length of which the Germans will construct two-thirds.

KEELUNG-TAKAO RAILWAY.—This line for about 10 miles has been in operation for some time between Hakukohko and Koroton over temporary bridges spanning the Taian and Taikoh rivers. The permanent bridges will be completed in April and the entire line thrown open to heavy traffic. Provision is being made at Keelung to meet the increased business at that port by the O. S. K.

MUKDEN-HAI LUNG RAILWAY.—A Chinese company is being promoted, and a concession applied for, to construct a line connecting Mukden and Hai Lung via Kai Yuan. The promoters have subscribed 800,000 taels and the balance of 200,000 taels has been offered by German capitalists and it is believed that the concession will be granted should the capital needed be thus arranged for.

CANTON-HANKOW RAILWAY DEFICIT.—Of the funds paid into the treasury of the railway which amounted to $8,000,000 but $3,000,000 remains, according to reports from Canton. As a result of year's work but 6.5 miles have been laid with steel. This would indicate a rather high cost of construction and charges of misappropriation have been made. In addition to this, it is announced that Peking is getting tired of the delays that have characterized the construction of this line and has threatened to take the line over and finish it with government funds.

INDIAN RAILWAY EARNINGS.—The returns of gross earnings of Indian Railways from the 1st April to the 31st December show an increase of 205 lakhs compared with the figures for the similar period in 1906. The North-Western State Line heads the list with an increase of over 64 lakhs. Then follows the Oudh and Rohilkhand (17½); Eastern Bengal and Great Indian Peninsula (each with nearly 13); Bengal Nagpur (11½); Southern Mahratta, including branches, (nearly 10); Indian Midland (9); Bengal and North-Western (nearly 8); Burma Railways (7½); East Indian and Madras (each 6); and quite a number of other lines with lower increases. The only serious decreases are the Jodhpur-Bikaner (2¼ lakhs) and the Agra Delhi Chord Line (2). The total gross earnings for the nine months represented in sterling are nearly £23,000,000. There are now 29,800 miles of open line.—*Railways.*

PUBLIC AND PORT WORKS, DOCKS, WHARVES, ETC.

CHINESE NAVAL BASES.—Maps and plans of different points suitable for the establishing of naval stations have been forwarded to the minister of war at Peking. Among the ports referred to is the Bay of Pakhao in Kwangtung province.

NEW ZEALAND HARBOR WORKS.—The legislative council is considering a bill appropriating £350,000 to be expended in constructing an outer harbor for the port of Gisborne and authorizing the harbor board to float a loan for the purpose.

MINDANAO DOCKS.—The program for the Moro province includes the construction of a dock at Davao and the extension of the dock at Zamboanga to bring the latter out parallel with the tide. The dock at Isabela de Basilan is practically complete.

CHINESE NAVAL REORGANIZATION.—Much interest has been aroused among foreign shipbuilding firms in the proposed reorganization of the Chinese navy and representatives from Germany, Great Britain and Japan are flooding Peking with inquiries as to the contracts for construction of ships and the supply equipment.

NEWCASTLE HARBOR WHARF.—The contract has been let by the New South Wales government for the construction of a wharf in the basin of the harbor at Newcastle, which will be 1,200 feet long. The price is £12,760. When the basin now being constructed is completed it will cover an area of 90 acres of deep water, the whole of which has been dredged out.

SHIPBUILDING, GENERAL MARINE, FISHERIES, ETC.

SARDINE CANNING INDUSTRY IN JAPAN.—The development of a market for the sardines caught in Ise Bay is anticipated in view of the satisfaction reported in regard to their quality from foreign consumers.

JOHORE STRAITS FERRY.—The Tanjong Pagar Docks are constructing a large ferry capable of carrying six carriages and to be operated from the terminus of the Singapore-Kranji Railway across the Johore Straits.

HIROSHIMA OYSTERS.—A shipment of oysters from these banks were recently sent by the Marine Products School to San Francisco for trial export. If successful, a company will be formed to encourage export to America.

SHANGHAI DOCK AND ENGINEERING CO.—The new passenger launch, Clutha, for the Associated Wharf Company of Shanghai, was launched recently from the Pootung works. It has a carrying capacity of 250 passengers.

WHANGPOO PATROL LAUNCHES.—The Kiangnan Docks at Shanghai are constructing four large and powerful steam launches of shallow draft to be used as patrol boats on the Whangpoo and other waterways of the province of Kiangsu.

FORMOSAN WHALING INDUSTRY.—The Dai Nippon Whaling Co. has secured a license to operate for a period of 15 years with station at Kooshan on the South coast. The sum of 220,000 yen has been appropriated for the construction of a formidable fleet.

CO-OPERATIVE SHIPPING CO.—An association of crane men has secured the contract for the handling of all the coal that is shipped from Newcastle, N. S. W. The railway supplies all the cranes and other shipping appliances together with the power to operate them.

TWO KWANGS STEAMSHIP CO.—A prospectus has been issued at Canton making a general appeal to the Chinese to subscribe to stock of this company which proposes to engage in the shipping trade on the West River and gradually extend its operations to other points in China and even to Japan.

FIRST TRANS-PACIFIC TURBINERS.—The Tenyo Maru, the first of the turbine steamers built for the Toyo Keisen Kaisha, and which was launched from the Mitsu Bishi Dockyards in September, made 20.4 knots on her trial run last month and will start on her run across the Pacific soon. This vessel and the Chiyo Maru are of 13,500 tons each and will be the first steamers of their kind in the Pacific constructed by a Japanese shipyard.

SHANGHAI'S NEW FIRE BOAT.—This vessel, constructed by the New Engineering and Shipbuilding Works of Shanghai for fire fighting purposes in the port, made a successful trial trip recently. The float's dimensions are: length, 55ft.; beam, 14 feet; moulded depth, 6 ft. 6 in.; draught, 4 ft.; speed, 9 to 10 knots. The machinery and fittings were supplied by Messrs. Merryweather & Sons, London, through their agents, Messrs. Jardine Matheson & Co. The fire engine has a capacity of 1,500 gallons a minute.

KIANGNAN DOCYARD ACTIVITY.—The new steam tug Ping Fuh, built for the Pingshan Coal Mine Co. and launched from the docks in December, made her trial trip up the river to the seven mile reach last month making an average speed of 11 knots. She is 115 ft. in length over all; 21 ft. wide and 9 ft. in depth, propelled by a pair of compound surface condensing engines of 500 horse power. The Ping Chow, a sister ship, was launched from the Kiangnan Dockyards, the latter part of January.

NEW JAPANESE WARSHIPS.—The six new warships to be constructed or finished this year include two battleships, one at Yokosuka and the other at Kure, a large type destroyer and two ordinary destroyers (*Ayanami* and *Isonami*) at Maizuru and a dispatch boat (*Mogami*)

THE HONGKONG—CANTON RAILWAY

The report of Mr. G. W. Eves, Chief Resident Engineer of the Hongkong-Canton Railway construction, on the progress of the work up to December 31st, 1907, concludes with the announcement that barring accident and unexpected delays the line would be completed by December 1909, so far as the contract work was involved and the line should be open for traffic by the end of May 1910. The importance of this terminal section of the line from Peking cannot as yet be estimated and from a review of the Resident Engineer's report and the generous support given the project by Hongkong there is every reason to believe that no delay will be occasioned. Some idea of the engineering problems involved in the construction of this may be gathered from the Resident Engineer's report a copy of which follows:

DESCRIPTION OF ALIGNMENT.—The present alignment is slightly different from that set out by Mr. Bruce. In Kowloon Station Yard, the line has been kept further West nearer Des Vœux Road. At Chain 3,800 Des Vœux and Gascoigne Roads are carried over the line by a very large Bridge.

After passing this Bridge, the grade rises at 1 in 150 to Chain 8.600, near which the line passes over a proposed 100ft. road by a 60ft. Girder Bridge, with 2 side spans of 10 feet Arches for the Pathways.

At Chain 9.700 another 100ft. road (Argyle Street) is crossed by a 60ft. Girder Bridge. As close as possible to this Road, I propose to put a Station for Yaumati.

Passing through a short tunnel, the line crosses another 100ft. road by a 60ft. Span Girder. This is the third Bridge which the Public Works Department have asked the Railway to build, for which there is at present no road except such as is marked on a Map as "Proposed."

After crossing this road, the grade rises at 1 in 100 towards the hills and at Chain 17.500 enters Beacon Hill Tunnel. There is a short length of level in the centre of the tunnel, Chain 20.700 to 21.300, and the line falls at 1 in 400 to the North Portal at Chain 24.700 where the grade changes to 1 in 100. Near this point, the line crosses the valley on a bridge consisting of three 40 ft. Girders, and runs down the North side to Tai Wai Village where there is a bridge of four 30 ft. Arches over the Shing Mun River.

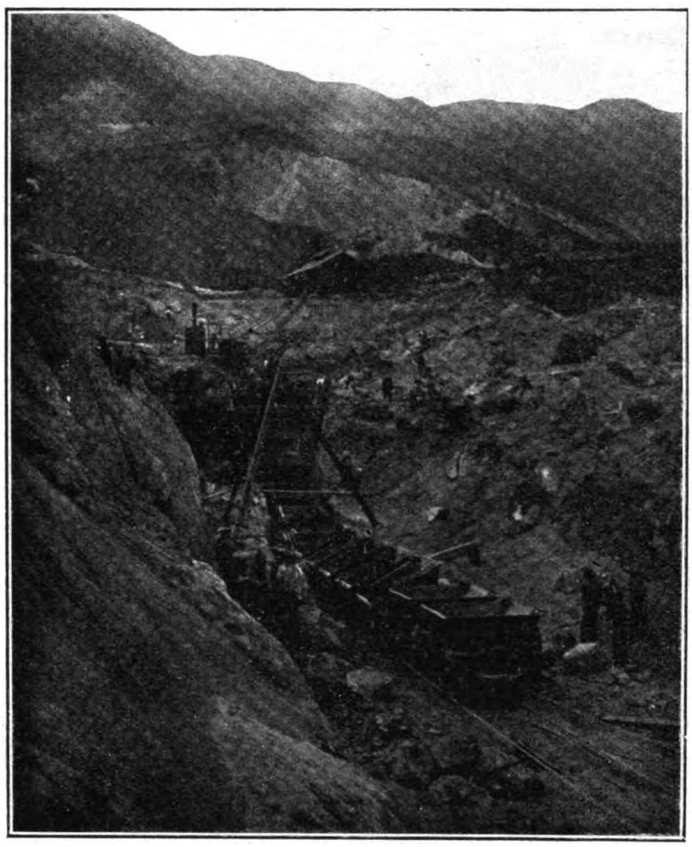
From this river, the alignment has been completely altered. Instead of continuing on and keeping to the sea side of the road, the line curves to the East and crosses the Taipo Road by a level crossing at Chain 33.600. Shatin Station is placed at Chain 35.000 and at a reduced level of 214.00 which ought to keep the formation dry during typhoons at this point.

Beyond Shatin Station, the coastline gets very rugged and indented with deep bays. It was found impossible to get a line at a low level here without having either very deep cuttings through the spurs or else running the line too far into the sea. For this reason, the grade rises at 1 in 500 and 1 in 1,000 till a height of 230.00 is reached.

Between Chain 43.200, and 44.200, the Taipo Road is diverted to the sea side of the line, as the Railway is too high above the road for level crossings. At Chain 45.300 the road passes under the Railway. Shortly after this, the road rises rapidly and between Chains 45.850 and 46.200 and 46.950 and 47.200 is diverted and kept on the West side of the line by being scarped out of the cutting above the Railway.

Between Chains 48.100 and 48.450 is a short tunnel, the road going round the spur is carried over the tunnel Portals at both sides.

At Chain 49.500 on Mr. Bruce's alignment, there was marked a viaduct of 20 spans of 20 feet in rather deep water. In order to avoid this, the new line goes more inland and passes in rather deep cutting through the West side of a hill at Chain 50.400. The line comes out on to the coastline again and is in heavy scarp cutting for some time, with a short tunnel between Chains 51.475 and 51.625.



THE KOWLOON-CANTON TUNNEL ENTRANCE—COMMENCEMENT OF BORING OPERATIONS

The grade runs down then past the village of Cheung Sui Tan and rises again approaching the Taipo tunnel. This tunnel between Chains 62.625 and 63.475 avoids a sharp curve round a very exposed spur to the South of Taipo Station Yard. Going through the spur, instead of round it, allows the line to cross the next bay much nearer the shore and avoids a good deal of bridging in deep water.

Taipo Station Yard is in the same position as Mr. Bruce placed it, but I have raised the level 2 feet to 220.00.

Beyond Taipo, the line deviates very much from Mr. Bruce's alignment for the first few miles.

The original alignment was very far out in the sea enclosing large tidal areas. The bridges necessary for letting the water out would all have to be founded on wells which would have been very costly requiring a large amount of plant. The new alignment runs right inland after leaving Taipo Station, passing to the West of Taipo Market. The line then gets back on the old alignment for a few chains

and then leaves it again to avoid a 6° curve on a 1 in 100 grade.

Fan Ling Station is reached at Chain 96.000 and the frontier at Chain 113.000.

Note.—The various levels quoted are referred to a datum 200 feet below Ordnance Datum.

SURVEY.—All expenditure under this heading has been completed. The difference between the Actual and Estimated Expenditure represents a saving on the Total Estimate.

LAND.—Outside Kowloon all the land has been bought with the exception of some lots near the site of Shatin Station.

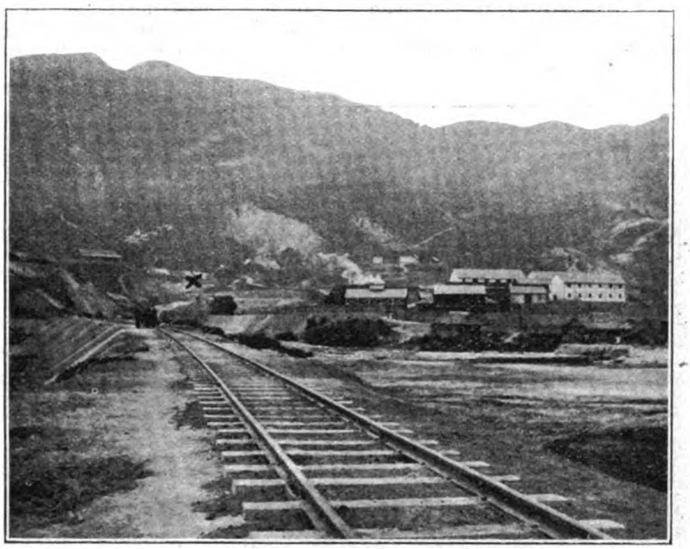
FORMATION EARTHWORK.—Any quantities and amounts I might give to show progress under this sub-head would be very deceptive. The total expenditure up to the end of 1907 was under ¼ of the total estimate for the line but about ½ of the total quantity of earthwork has been done. This is owing to the fact that the commencement of all earthwork cuttings, &c., is generally the easiest and the quickest done because the material is soft and therefore more cheaply excavated, while the interior is generally composed of rock which besides being harder to excavate has to be led out a longer distance before it is in its final position in the bank.

The Departmental System of carrying out works does not lend itself to easily estimating the future expenditure to complete the work because all work is done by petty contracts on a schedule of rates. The rates are graduated to suit the varying nature of the work and unless costly borings were taken which would also take some considerable time it would be impossible to make anything like an estimate of the amount of money required to complete the earthwork on the line. These borings if taken would not assist the Engineers in any way in carrying out work under this Departmental System.

The Estimate of Expenditure during 1908 must therefore be regarded as approximate only but it should be sufficient to complete all Earthwork Banks and Cuttings with the exception of the Reclamation in Kowloon Station Yard, a big bank in Shatin Valley and also another near Taipo. If all goes as at present I think there may be a saving of about 10 per cent or say $250,000.00 under this sub-head.

FORMATION TUNNELS.—The progress of the work under this sub head is not quite as much as was expected. This is due to the unexpected difficulties met with in the nature of the material through which the long tunnel under Beacon Hill is being driven, and also to the fact that great delays were experienced at home in getting delivery of the plant required for working the tunnel owing to the workshops generally being very full up of orders.

There are five tunnels on the line but four of these can be neglected as far as expenditure and progress during 1907 is concerned.



VIEW AT KOWLOON END OF TUNNEL SHOWING WORKING PLANT—TUNNEL ENTRANCE INDICATED BY X

On a large tunnel as compared with earthwork the reverse is the case as regards expenditure and progress during the first year of construction. In the case of a long tunnel a very large amount of material and plant has to be collected and erected before a proper start can be made. This increases the expenditure per lineal foot of tunnel during the first year and it would not be right to multiply out the completion of the tunnel at the same rates as the first lengths.

Up to the end of 1907 the following had been done at Beacon Hill Tunnel:—

SOUTH SIDE.—The heading had been driven 1,085 feet from the face, and a shaft sunk about 90 ft. deep. This shaft is now thrown out of use but its construction added greatly to the length of heading driven. 345 ft. of heading had been widened and fully lined.

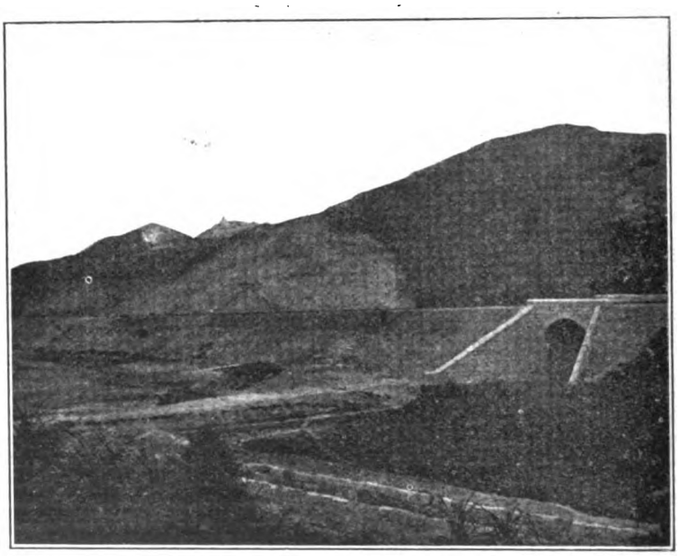
NORTH SIDE.—The heading from the open was driven 952 ft. during the year. It was started during the 1st week in January 1907. A shaft was also sunk 270 ft. between January 3rd and October 24th and 115 feet of heading driven towards the South and 100 ft. towards the North. These headings are in extremely hard compact rock which I hope will not require any lining of brickwork. On 31st December there was 120 ft. of lining completed.

The plant at both sides is similar. There has been erected a complete double set of Electric Lighting Dynamos and also a double set of air compressors for driving the rock drills. These compressors are at present used for ventilating as well as driving the drills, a triplicate set of compressors are on order for ventilating when the headings get further into the hill. A great part of the expenditure up to date on the tunnel has been for the erection of this plant and the housing of the staff which will not I hope occur this year

Hardly ½ of the heading has been completed and the cost per lineal foot is slightly in excess of the estimate and about 1-15 of the widening has been executed. This widening is costing considerably more than the estimate and may result in an excess of $300,000 being required. This is due to the large amount of explosives required and the cost of the labor generally being under-estimated in the first instance through unforeseen difficulties.

As regards brick-lining it is difficult to say how the estimate will work out. One thousand feet was estimated as requiring to be fully lined at each end. This will be exceeded at the South side as the decomposed granite is extending much deeper into the hill at this side than was expected. At the North side the rock got harder and compact much more quickly and the distance estimated to be fully lined will not be exceeded. The balance of the tunnel was estimated as requiring only an arch overhead to keep chips of stone from shaking out and falling on passing trains. Part of the tunnel will not require even this so there may be a saving in the lining.

A very large amount of material is at site in the shape of bricks and timber which makes the figures for expenditure look large compared with the progress, and makes diagrams and figures very deceptive



EMBANKMENT APPROACHING KOWLOON END OF THE TUNNEL

The minor tunnels will all be built within the estimate. The expenditure during the past year chiefly consisted of the cost of materials at the site of works.

FORMATION ROADS.—No expenditure was undertaken under this sub-head.

BRIDGES—MAJOR.—About ½ the estimated expenditure has been expended on the large Bridges. Of these 18 Bridges work has started on all except about 3 as regards at least collecting of material. Four are complete with the exception of the Ironwork and 3 Arched Bridges are practically keyed in and about half finished. The rest are well in hand. I would consider there will be a saving of about $50,000 under this head but it is difficult to say as all the foundations are not in as yet.

BRIDGES—MINOR.—About ¼ of the estimated expenditure on this sub-head has been incurred and I consider a good deal more than ¼ of the work has been finished. Rather a larger number of Minor Bridges have to be built than was at first expected. Owing to the complicated systems of irrigation in the New Territories the water could not be collected and run through one opening but had to be split up into several minor bridges and culverts. There will be over 30 minor bridges when the Railway is complete and of these seven have been absolutely completed with a saving of about 10% on the estimate. Work is well in hand on the other bridges and there is no reason why the saving on these should not be at least 10% or about $50,000.00.

BRIDGE CULVERTS.—The expenditure on these is keeping well within the estimate though the number is rather in excess of that estimated for. These culverts are as a rule made only for single line owing to there being no difficulty in lengthening them when the line requires doubling.

The decrease in expenditure during 1907 in the Main Head of Bridges was owing to the fact that the Survey took rather longer than was expected and as there was no reason for picking up lost time, no extra rates were given to hurry up the work.

TRACK BALLAST.—Not much work was done under this heading during 1907 owing to the high rates asked by the Chinese contractors. As there was no object in collecting ballast at this early stage no large contracts were let. A large amount has been put down for 1908 but it is hoped this amount will not be required. The rates are falling gradually and it is probable that this will be done for the estimated amount.

TRACK, PERMANENT WAY.—The unforeseen expenditure during 1907 under this sub-head was for rails and sleepers for the reclamation of Kowloon Station Yard. It was decided to use the permanent rails and sleepers for this work as the use of narrow gauge rails and sleepers similar to what is in use at the Tunnel would flood the Colony with such a large amount of this material that it would be difficult to get rid of it at the completion of the work. This expenditure was for material only.

PLANT.—Under this heading the increase of expenditure was owing to Broad-gauge Engines, &c., being required for the reclamation in Kowloon Station Yard. These Engines will form part of the permanent equipment of the line. No permanent increase is foreseen.

GENERAL CHARGES.—The increase here is due to a large original under-estimate and to the difficulties of the line rendering it necessary to increase the superior grade of the Supervising Staff.

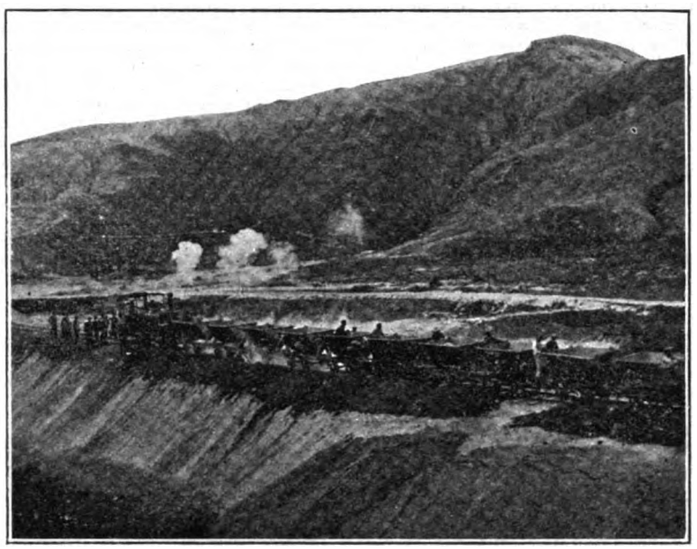
GENERAL PROGRESS.—There are two large works on which depend the final completion of the line:—

(a.) Beacon Hill Tunnel.

(b.) Excavation of Cutting No. 1 which is to form the reclamation for Kowloon Station Yard.

Beacon Hill Tunnel has always been considered the ruling factor as regards the final opening of the line for traffic. At the end of December the heading going North from the South side and that going South from the shaft at the North side were 4,914 feet apart which would meet at the end of November 1909 if the present average can be kept up. Six or seven mouths at least would be required to widen out and lay the rails ready for opening for traffic, say the end of May, 1910.

The reclamation of Kowloon Station Yard with material taken from cutting No. 1 is however taking longer than might be expected and I trust that the completion of the whole line may not be delayed by any failure on the part of the contractors to finish their contract within the specified time, viz., December, 1909.



EMBANKMENT CONSTRUCTION BETWEEN KOWLOON AND THE TUNNEL ON THE HONGKONG-CANTON RAILROAD

The following comment by the *China Mail* is an indication of the interest manifested in Hongkong in the opening up of this new avenue of commerce, and refers specifically to the benefit to be derived by the New Territory by the completion and operation of this line. *The Mail* says:

"The question of whether the New Territory is ever going to pay the Government of Hongkong as an investment is one that has puzzled thoughtful residents for a long time. At the present moment it is unprofitable, no matter how picturesque it might appear upon the map of South China as a tinge of red against the yellow. The hope is, however, that the railway that is now being pushed through the red hills at our immediate front will spread the population and open up any resources that the country possesses. The platitude oft expressed is that with the introduction of railways any country must necessarily flourish, that a stream of commerce is opened up where commerce was unknown before.

"We have always hoped that such would be the case in our possession across the water, and the hope has been more or less backed up by the knowledge that Chinese are likely to develop the agricultural resources of the country once transportation to this market is made easy, whilst whatever latent wealth lies in the ground will come under the notice of financiers who are ever ready to plant an industry where profits are a prospect.

"Whilst it must not be forgotten that the New Territory was taken over by the British Government solely for its military value in regard to Hongkong it may yet have a commercial and industrial importance that will be sufficient reward to the Colony of Hongkong for the money lavished upon its upkeep in the time when revenue returns were not of any substantial value. The greatest factor towards this desirable consummation is undoubtedly the railway, and whilst residents know that something is being done on the Kowloon side in the way of laying down a line, few have any conception of the work that has actually been completed during the past six months. Could a bird's eye view of the territory be taken a remarkable change would be observable in nature's surface. Through the gaunt red hills men are fighting their way with pick and shovel, with crowbar and dynamite. From Father Neptune the artificer and the coolie and the four-man shovel and the little train are claiming something for the convenience, the comfort and the use of future peoples.

"The sea in Hunghom Bay is being made to give up its own, and gradually a force more powerful than the bosom of Mrs. Partington is forcing back the blue waters of the harbor to make room for better things. The reclamation work for the railway station and shunting yard site is proceeding apace. What six months ago was a damp sea bed and an unoccupied tract of shore where dirty junks were cleaned with fire and the sampan people spread out their belongings on wash days, now constitutes a scene of rare activity. Every day sees a couple of puffing engines dragging truck loads of earth from away in the red hills and emptying them into the sea. Railway lines have been laid, engine sheds have been erected, offices have been built for the staff and altogether the whole of the appurtenances necessary to carry on such a work as the building of a line and the establishment of a railway station which will one day be the other end of a stretch of gleaming girdle linking the furthest cities on the hemisphere, are established or in course of preparation.

"The remote importance of this line is what appeals when the imagination is allowed a little freedom, and the vast possibilities stir the being with a thrill upon contemplation of the temerity and powers of man when pitted against nature. However philosophy has to be left out of the question for the moment. What we have to do is to congratulate those who are responsible for the rapidity with which the first section of the Kowloon-Canton Railway are doing their part. From Hunghom Bay to the big tunnel through the main range work has been done during the last six months that has transformed the face of things. Great hills of rotting granite have been tackled by comparatively puny coolies and the mountains have suffered. Three miles of line have to ultimately be constructed and cuttings and bridges, nullahs and tunnels made. This means the removal of some million and a half cubic yards of earth the employment therefor of hundreds of coolies, with locomotives, trucks, and so on.

"At Hunghom, the reclamation of about five acres of sea bed has to be made and to that end the sea wall foundation has been done, nullahs and sewers diverted and much of the earth dumped. To bring this earth down to the sea a temporary railway a mile and a half long has been laid to get at the high portion of the chief cutting, which is to eventually be about 150 feet deep. Now the railway is tapping the upper level, by and bye it will come down to the permanent level. This temporary line does not traverse the route of the permanent line. It skirts round it; dodges down the line of least resistance as it were, and shows up along the rifle range. Then it dips into where the work is being done, crossing the old water works valley on timber bridges. Here coolies are operating without stop (individually, however, they are not demonstrating perpetual motion in the human) and they are at the sea end working on the face of the big hill that has to be removed just behind the electric power house. On the other side of the range other gangs are digging their quota and actually a continuous three miles of work is being proceeded with. Some of the bridges are almost completed; culverts and water channels have been made, and the short tunnel in the first section has been pierced. Daylight was let in during the week in January and the brick work in the tunnel is well in hand. This tunnel is being built on the Italian principle, top first, and now that the excavation is through the hill progress is likely to be rapid.

"All along the route of the first section industry is the order of the day. The contractors have their forces well in hand and at the present rate of progress the works are likely to be finished long before the big tunnel is completed. But the work is not hurried or scamped by any means. It is substantial to a degree. Careful and constant European supervision of the workmen, who are all Chinese, is evident at every point, and when we consider the difficulty of instilling new ideas and western methods into the Oriental mind we must congratulate those responsible and wish their efforts deserved success."

VOLCANIC ASH FOR CEMENT

The use of volcanic ash with cement is the subject of an interesting article by Consul George H. Scidmore of Nagasaki which includes a number of analysis of value. He says:

"On November 24, 1907, I visited the deposits and works of the Kyushu Volcanic Ash Company near Karatsu on the northwestern side of this island of Kyushu. I was accompanied by the president of the company and Commander Roy C. Smith, of the United States ship Chattanooga, who, with several other officers of the American Navy, was detailed by Rear-Admiral Hemphill to make an investigation and report for the benefit of the Navy Department, as large quantities of cement are required for work in the Philippines.

"The company simply makes use of that species of volcanic earth known as 'pozzuolana,' which is stated to have been used in hydraulic cements in Italy as early as 200 B. C. Later its value was recognized throughout Europe. It is contended by this company that Portland cement, when used alone for marine work, is liable to crack and cause serious damage after a lapse of time, and the reason given for this defect is that the 'free' lime which is produced during the setting of the cement combines with sulphuric and carbonic elements.

"Credit is given to Doctor Michaelis, a German, for solving the problem by the admixture of pozzuolana, his theory being that the soluble elements of the pozzuolana absorbed and combined with the 'free' lime of the Portland cement and thereby not only neutralized any harmful effects, but, by judicious treatment, helped to give greater tensile strength to the compounds than if the cement were used alone. A more compact setting, special value in sea work, and cheapening of cost are other important advantages claimed for the addition of pozzuolana.

"The abundant deposits of this material throughout the volcanic regions of Japan have led to a careful study of the question and resulted in the establishment of several plants in this district. The considerations of uniformity of quality, abundance of supply, and convenience in working and transportation led the volcanic ash company to select land situated at the top of a range of mountains, on a high road about 7 miles from Karatsu and about 3 miles from Yobuko, excellent ports on the northwest coast of this island.

"The pozzuolana is dug from the hillside and conveyed in carts to adjacent mills where it is spread on an open field for drying. Later the drying is completed over furnaces and the material is then ground and sifted through sieves of 2,500 to 5,000 perforations to the inch. Of several species of pozzuolana the company prefers that of a heliotrope color and special to the Karatsu district. Samples of it, both crude and in powder, accompany this report, and have been furnished to Commander Smith for experiments in the Philippines. [The samples will be loaned to business firms making application to the Bureau of Manufactures.]

"The following are analyses of the Karatsu pozzuolana, or volcanic ash, as furnished by the company:

Composition.	Heliotrope.	Gray.	Mixture of 1 and 2.
	Per cent.	*Per cent.*	*Per cent.*
Decrease in heat test	9.90	9.70	8.40
Silicic acid	41.95	42.10	44.15
Ferric oxide	18.56	18.28	17.40
Alumina	25.00	25.72	24.81
Lime	1 33	1.15	1.57
Magnesia	.82	.85	.94
Sulphuric acid	Trace only		
Alkali	2.35	2.20	2 78
Soluble silicic acid (in silicic acid)	26.40	28.	26.75

The following is the result of a chemical analysis of pozzuolanic cement made at the prefectural laboratory of Osaka:

Loss on ignition	10.02	Total alkali	.93
SiO2 (soluble silica 31.81 per cent)	42.63	MnO2	.08
Fe2O4	16.83	SO3	Trace
Al2O3	27.52		100.00
CaO	.03		
MgO	.96		

[This leaves 1 per cent unaccounted for.—B. of M.]

TENSILE TESTS

"I have also been furnished the following table showing the results of tensile tests of mixtures containing this material, made at the Sasebo naval depot, where large quantities have been used in Government work:

Qualities of water used in experiments	Proportions in weight mixture. Portland Cement	Lime	Pozzuolanic Cement	Sand	Tensile strength per square inch in English pounds. After 4 weeks.	After 8 months.	After 6 months.	After 12 months.	After 24 months.
Sea	7	....	3	20	284	455	553	574	583
	6	....	4	20	284	405	469	432	515
	5	....	5	20	268	364	463	459	500
Sulphate of Magnesia	7	....	3	20	278	431	500	511	518
	6	....	4	20	251	385	415	441	464
	5	....	5	20	238	340	414	427	472
Fresh	7	....	3	20	291	376	449	436	471
	6	....	4	20	243	345	426	414	489
	5	....	5	20	205	318	401	370	388
Sea	7	....	3	30	167	325	401	400	423
	6	....	4	30	158	264	300	300	349
	5	....	5	30	147	214	291	291	333
Sulphate of Magnesia	7	....	3	30	167	277	296	260	311
	6	....	4	30	133	175	195	177	206
	5	....	5	30	116	170	162	176	265
Fresh	7	....	3	30	161	247	293	306	345
	6	....	4	30	152	256	285	291	331
	5	....	5	30	124	210	249	229	288
Fresh	..	2	8	20	160	312	271	306	....
	..	3	7	20	156	292	295	317	....
	..	2	8	30	122	215	214	214	....
	..	3	7	30	106	234	217	223	....

"The following is a report of compression test of Karatsu volcanic ash said to have been made at the Kioto Imperial University:

Description.	Proportion in volume. Portland cement.	Volcanic ash.	Sand.	Per square inch in pounds. After 1 week.	After 4 weeks.	After 3 months.	After 6 months.	After 1 year.
Fresh water.	1	....	3	782.25	1,177.63	1,659.88	1,880.25	2,104.97
Fresh water.	.5	0.5	3	498.63	782.25	1,178.38	1,191.87	1,458.57

MIXING DIRECTIONS—MARKET PRICES.

"As a result of experience the company recommends the following mixtures, the proportions being in volumes:

"For harbor, dock, and general sea work, ash 3, cement 2, sand 10; for water works, drains, river embankments, roads, and tunnels, ash 3, lime 1, cement 1, sand 10; for drains and plastering ash 4, lime 2, cement 1.5, sand 10; for foundations and brickwork, ash 1, lime 1, sand 30 to 40; for concrete add gravel one and one-half to twice the quantity of sand used. Sand and gravel should be well washed and partially dried before mixing.

"The following directions for mixing are given: Place the kneading stand at the desired spot Have all the materials ready at hand. Have volcanic ash and lime or cement well mixed as desired, and adding sand to it, mix it again, pouring in a proper amount of water; knead it over and over, using sufficient pressure, and covering entirely the outside of sand with volcanic ash, etc., knead them until the different materials lose their own colors and come to one color.

"The company prepares the ash, ready for use, packed in straw bags, weighing about 140 pounds each, the prices for which are at Nagasaki 70 sen (35 cents), at Kobe 80 sen (40 cents), and at Yokohama 1 yen (50 cents). In large quantities the prices, free on board ship, per ton of 2,000 pounds, are at Nagasaki and Shimonoseki (Moji) 10.5 yen ($5 23), at Kobe 12 yen ($5.98), at Yokohama 15 yen ($7.47). Freights from Nagasaki and Shimonoseki (Moji) to Seattle and San Francisco per ton of 2,000 pounds are about $4, and from Nagasaki to Manila about $2 50.

KIND WORDS FOR CHINA

"R. W. Smith, who is connected with Messrs Jardine, Matheson & Co., of Shanghai, China, spent a few days in Portland," says the *Timberman*, the leading lumber magazine of the Pacific slope, published at Portland, Oregon. "Mr. Smith says the outlook for railroad building in China is very bright, and, during the next ten years, if nothing unforeseen happens, he looks forward to a wonderful activity in the commercial development of China. He says the timber interests of the Yalu River have been overestimated and that the Pacific Coast has not much to fear from that quarter. The industrial revolution which is going forward in the reduction of the export of flour from this Coast to the Orient, caused by the building in China of large flour mills, must necessarily continue. The United States will continue to export the wheat from which a large share of the flour will be made, but the milling will be done on the other side. Mr. Smith says there has been some wheat exported in a small way from Vladivostock. The wheat was raised along the Trans-Siberian road and is an excellent quality of hard wheat. The virgin soil and the rigorous climatic conditions are conducive for growing an excellent cereal.

SOUTH MANCHURIA RAILWAY ENTERPRISE

A correspondent of the FAR EASTERN REVIEW at Tairen writes:

"Much has been written in the past year concerning the activities in Manchuria, and particularly with reference to railway building and the enormous amount of equipment ordered for railroad purposes. All of the material for the South Manchuria Railway will be discharged from the steamers at Tairen, the principal seaboard town, and at this point all of the rolling stock will be erected and put into commission. Tairen is beautifully situated and no doubt will develop into a splendid city when the great resources of Manchuria are developed. The country is rich in mineral, coal and other products which, no doubt, will be fully developed when the South Manchuria Railway Co. complete the changing of the 42" gauge to 4' 8½", or broad gauge, and their two hundred or more locomotives put into commission.

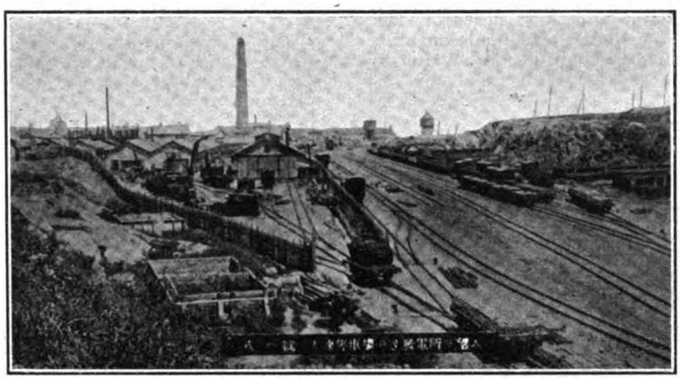
"Many steamers are now arriving from America bringing locomotives, passenger and freight cars, bridges, material for large railway shops, and thousands of tons of 85-lb steel rails. The South Manchuria Ry. have now standard gauge tracks (4'8½") from Tairen to Port Arthur upon which they are now operating some of the new equipment recently received. It will be a boon for this part of the country when travelers can ride with the comfort that this railway will provide between Port Arthur and Tairen, to Mukden and Harbin; the consummation of which is not far distant.

"I enclose photograph of one of the new South Manchuria Railway suburban locomotives, built by the American Locomotive Co., of which there are 69. A number of the Engines referred to are now pulling regular trains between Tairen and Port Arthur. In the aggregate, the same Locomotive Co. will furnish for this railway system some two hundred locomotives; I enclose photograph showing one of their large consolidation engines pulling a train of broad gauge cars into Tairen railway yards.

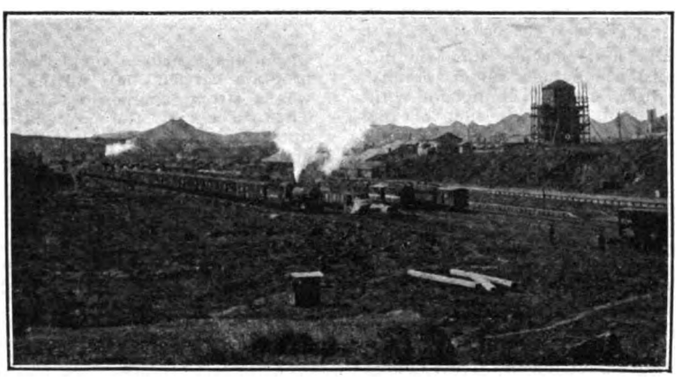
"The management of the South Manchuria Ry. have planned well for the erection of their new equipment, and in the erecting yards can be seen many 15 and 30 ton steam traveling cranes moving back and forth among fifteen or twenty locomotives, passenger cars, and many freight cars that are all under the hammer, as it were, and being erected at the same time by the very large force of workmen employed. All of the work is supervised by the Japanese people, but the bulk of the labor is done by the Chinese coolies; but the fitters, or machinists and carpenters are mostly from Japan, and they are a splendid lot of workmen."

In reference to the prospects of this line, Mr. Kubota, one of the managing directors of the company, is quoted by the *Japan Mail* as follows:

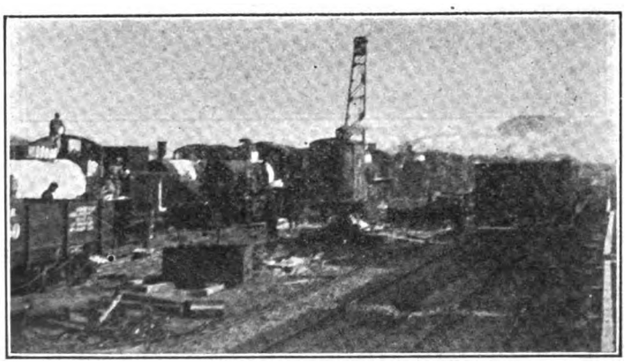
"The Chinese," he says, "are learning to appreciate fully the advantages of railway transport, so that, in spite of the very poor harvest of last year, the beans and bean-cake entrusted to the railway for carriage during the current year already exceed the total carried during the nine months of the Company's operations last year. It may be that for the moment a portion of this produce will find an exit *via* Vladivostock, but in all probability that will be only a temporary phenomenon. The development of the zones attached to the railway is a matter of great importance. These zones measure 55 million *tsubo* and are for the most part capable of very profitable cultivation. The Railway authorities see plainly that by encouraging settlers in these zones the income of the line can be very greatly increased. Hence the idea of appropriating 8 or 9 million *yen* to the building of schools, hospitals and habitations. Ultimately a system of partial local autonomy will be pursued in the zones, and taxes will be levied at rates fixed after consultation with the inhabitants. The administrative power in the zones is vested in the Railway authorities, but the power of police remains in the hands of the Governor-General. The great region whence goods offer for railway transportation lies to the north of Mukden, and if the proposed Fakumen railway were built, it would tap this region and divert a major part of thetraffic from the South Manchuria line. At its nearest point the Fakumen road would be only from 25 to 26 miles distant from the



SOUTH MANCHURIA RAILWAY'S OLD SHOPS AND NARROW GAUGE TRACKS TO BE REPLACED BY BROAD GAUGE



VIEW OF CONSOLIDATED ENGINE OF THE AMERICAN LOCOMOTIVE CO. HAULING TRAIN OF AMERICAN CARS INTO TAIREN YARD—ALSO NARROW GAUGE TRACK AND CARS.



ROLLING STOCK IN ERECTION YARD AT TAIREN—TWO 40—TON STEAM TRAVELING-CRANES IN YARD NOT INCLUDED IN VIEW.

Japanese line, and would afford facilities of carriage to Peking on one side and to Newchwang on the other. That the consummation of this project would be in the last degree injurious to the prosperity of the South Manchuria Railway there can not, according to Mr. Kubota, be the slightest doubt, and he insists that Japan must resolutely maintain her treaty rights.

Mr. J. W. BEARDSLEY, DIRECTOR BUREAU OF PUBLIC WORKS

From the date of his graduation at Cornell in 1891, Mr. J. W. Beardsley, Director of the Bureau of Public Works, Philippine Islands, has been active in connection with engineering construction and public works of

BRIDGE ACROSS SOUTH MANCHURIA RAILWAY TRACKS AT TAIREN OPENED IN OCTOBER 1907

magnitude. His first service was in the capacity of assistant engineer under the city engineer of Newton, Mass., in connection with the construction of the extension of the Metropolitan Sewer System of Boston remaining in that capacity for a year. In 1892 he accepted a position on the staff of the chief engineer in charge of the Sanitary District of Chicago where he remained until 1898. From 1898 to 1899 he was in charge of the St. Lawrence Division of the Deep Waterway Commission investigation for determining location and cost of deep waterways between the Great Lakes and the Atlantic. In 1899 he was assigned to duty with the United States Engineering Corps on Harbor and Canal Improvements on the Great Lakes, in which capacity he was serving in August, 1902, when he was appointed consulting engineer to the Philippine Commission and later, upon the organization of the Bureau of Engineering, he was appointed chief. The reorganization bill provided for the amalgamation of the bureaus of Architecture and Engineering under the title of Bureau of Public Works and Mr. Beardsley was placed in charge as director.

The Bureau of Public Works in the Philippines is one of the most important departments of the government service. The expenditure for public roads, buildings, etc., under the direction of the bureau amounts to millions every year and, as its director, Mr. Beardsley has not only demonstrated his ability to handle the situation but has shown a remarkable capacity for patience and perseverance in overcoming the impossible and improbable, as the great work of his bureau progressed from its initial stage.

MANILA MERCHANTS ASSOCIATION

At the annual meeting of the members of this association March 30, the following officers were elected:

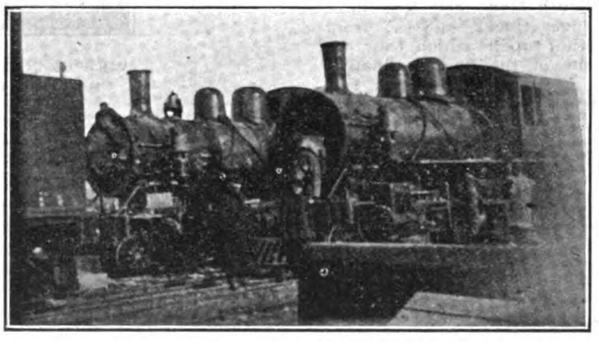
PRESIDENT, John Gibson.
1st Vice-President, Daniel Earnshaw.
2nd Vice-President, F. L. Strong.
3rd Vice-President, E. Steiger.
Secretary, tied between A. G. Cohn and Milton E. Springer.
Treasurer, S. Erlanger.
DIRECTORS:
M. A. Clarke, A. C. Cohn, R. W. Dell, Charles Derham, P. G. Eastwick, E. E. Elser, A. J. Francis, Carl Hess, M. Loewenstein, James F. McLeod, Walter E. Olsen, H. M. Pitt, C. E. Preusser and A. Roxas.

This association has been doing magnificent work in spreading broadcast accurate and valuable information in regard to the Philippines and is given generous support by the commercial community.

Mr. M. A. Clarke, the retiring president, has given much of his time to the perfecting of this organization and his successor, Mr. John Gibson, the well-known lumberman, is also a man of marked ability. Mr. Walter E. Olsen has also been identified with the active program carried out during the year and was a strong competitor for the presidency. The success of the association is largely due to the harmony prevailing and the active and unselfish interest taken by the officers and directors.

U. S. Q. M. LAUNCH EGBERT LAUNCHED

The first of the three new steel launches ordered by the United States Quartermaster's Department from the Hongkong and Whampoa Dock Company, was launched from the Kowloon docks, March 25 This vessel has been named the Egbert, after Colonel Egbert who was killed in an engagement at Malinta, Philippine Islands March 25, 1899. These launches of 90 feet in length, 15 feet wide, and depth 7 feet 6 inches, will have a speed of 10 knots. The boilers are steel multitubular with 150 pounds working pressure and the engines, compound condensing. The Egbert has been equipped with a de Laval steam turbine and centrifugal fire pump with a capacity of 200 gallons a minute.



VIEW OF OPERATIONS IN SOUTH MANCHURIA RAILWAY ERECTING YARDS AT TAIREN—OVER 200 ENGINES AND HUNDREDS OF BROAD GAUGE CARS TO BE ERECTED

SINGAPORE CONTRACTS AWARDED

At a recent meeting of the municipal commission of Singapore the following tenders were accepted:

The Westminster Construction Co., Limited, was awarded the contract for the construction of a clear water tank; to execute some sundry works off the Serangoon Road about 3.5 miles from the city and to install nine filters. The price named was $665,000.

Messrs. Riley, Hargreaves & Co., Limited, were awarded the contract for the supply and erection of the structural steel and iron work, including two entrance gates, for the new central fire station for $13,000.

The contract for the delivery of from 1,000 to 15,000 tons of coal at the rate of 21 s. a ton c. i. f. Singapore, delivery on or about the end of April.

The contract for the supply of labor and materials, with the exception of the iron and steel work, and to erect the central fire station building for the sum of $64,500, was awarded Messrs. Chia Tieu Sien & Co.

MOTOR FIRE ENGINE FOR SHANGHAI

A new motor steam fire engine was recently constructed by Messrs. Merryweather and Sons, of Greenwich, for the Shanghai Fire Brigade. It is especially interesting as being the largest of its kind in the world, and has the enormous pumping capacity of 800 gallons per minute, says the *L. and C. Express*. As in other machines of its type, the boiler is fitted with an oil fuel burner, and the wheels are shod with solid indiarubber tires, those in the rear being of twin section. Before being shipped to its destination it was subjected to severe road tests in the neighborhood of the makers' works. It can travel up to 30 miles an hour on the level if necessary, whilst the powerful brakes enable it to be efficiently controlled.

BIDS ADVERTISED

The Bureau of Public Works of the Philippine Islands announce that sealed proposals will be received to April 20th, for the construction of a reinforced concrete bridge of two spans across the Tapon river, Dalaguete, Cebu, including all plant, labor and materials.

The Bureau of Supply of the Philippine Islands has advertised for proposals for the supply of 36,000 barrels of cement to be opened April 30th.

The Bureau of Supply has advertised for proposals for the supply of 36,000 tons of coal for fuel, the coal to be of good quality for steaming purposes, free from dust and slack, with deliveries to be made at Iloilo, Cebu, Zamboanga, Jolo, Tacloban, Romblon, and Legaspi. Tenders will be received until May 5th.

FAR EASTERN ENGINEERING, CONSTRUCTION, COMMERCIAL AND FINANCIAL NEWS

ELECTRIC RAILWAYS, LIGHTING, POWER, TELEGRAPHS, ETC.

WIRELESS ON JAPANESE STEAMERS.—The Nippon Yusen Kaisha has placed wireless apparatus on board its six American liners.

HANKOW ELECTRIC LIGHTING.—The German municipality of Hankow proposes lighting the streets with electricity throughout at an early date.

SWATOW ELECTRIC LIGHT CO.—Differences affecting the plans of the company were recently adjusted and after some repairing the system began operation.

CHANG-CHUNG ELECTRIC LIGHTING.—The South Manchuria Railway is preparing to instal an electric light plant and a complete telephone system at Chang-Chung.

ELECTRIC LIGHTING FOR CHAO-CHOW-FU.—The inhabitants of this thriving city of Kwangtung are anxious to secure a modern electric light plant. Japanese are promoting the enterprise.

WIRELESS IN CANTON.—A station each has been established at Canton, Whampoo and Boca Tigris. One of the gunboats has been equipped with apparatus and the new patrol launches will have apparatus installed.

WIRELESS IN CHINA.—Experiments with wireless telegraphy will not be indulged by the viceroy of Canton until the method is perfected on the advice of the foreign superintendent of telegraphs at Shanghai.

PEKING TELEPHONE SYSTEM.—Over two thousand phones have been installed in the Chinese capital and the telephone staff is kept busy making installations and extending the system to accommodate new subscribers.

ELECTRICAL GOODS, IN KOREA.—The introduction of electric fans, flatirons and electric warming pads will be included in the stock of electrical goods carried by the American-Korean Electric Company at Seoul next season.

SHANGHAI PRESS CABLE RATES.—The rate a word for press dispatches charged by the Deutsch-Niederlandische Telegraph Co. from Shanghai is 40 cents gold to New York, 35 cents to San Francisco and 50 cents to points in Holland and Germany.

CHEMULPO ELECTRIC RAILWAY.—This company has received a concession from the residency general to construct a system of electric railways within the corporate boundaries of Chemulpo and has also been granted a permission to increase the capital of the company to yen 150,000.

KYOTO ELECTRIC RAILWAY.—The municipality of Kyoto has secured a charter to construct and operate an electric railway system in that city. The capital required for this work will amount to over 2,500,000 yen which will be raised by issue of municipal bonds. The promoters estimate a net yearly profit of 16%.

ELECTRIC RAILWAYS IN MONGOLIA.—The Tartar General of Charhar, Mongolia, has announced that sufficient funds have been subscribed to construct a system of electric tramways in outer Mongolia and recently submitted a memorial to the authorities at Peking asking for authority to proceed with the construction.

HANKOW ELECTRIC LIGHT WORKS.—The work on the installation of the electric light plant at the mouth of the Han is progressing rapidly. The project is financed entirely by Chinese capital and promoted for the purpose of lighting the native city. A British firm has the contract and only the most modern equipment will be installed. Two British electrical engineers are in charge of the work.

ELECTRICAL INSTALLATION IN KOREAN MINES.—A complete modern turbine electrical generating plant has been installed at the Oriental Consolidated Mining Co.'s mines at Unsan. The reservoir has a capacity of over 111,000,000 cubic feet of water and this is communicated to the generating plant by means of a flume. This plant is capable of operating all the stamp mill machinery and mine hoists.

RANGOON ELECTRIC TRAMWAYS.—This system has been operating with 20 miles of track up to the end of the year and five more miles were practically completed at that time. According to last report it has become necessary to extend the system to meet the growing demand for light and power and for this purpose £100,000 has been provided by special issue of cumulative preference and ordinary shares.

TOKIO STREET RAILWAY CONSTRUCTION.—The Tokyo Railway's new line from Sarugaku-cho, Kanda, to Tomisaka-shita, Koishikawa, via Suido-bashi was completed last month. The line from Hongo to Denzuin-maye, Koishikawa is also complete. The line between Tengenji and Shinobashi, Azabu, is to be completed this month. Of the Shinjuku line the doubling work of the line along Kojimachi will not be completed before June there being many buildings along the street still unremoved. The connection line between Fukagawa terminus and Honjo is to be finished in course of a few months while a part of Hirowo-Ikegami line and the new line between Hanakawado and Yoshinobashi have been already commenced and both lines are expected to be open for traffic by June next.

THE DAI-NIPPON TRAMWAY COMPANY.—Amalgamation has been effected between the following light railway companies:—The Kumamoto Light Railway (capital 400,000 yen), Yamaguchi Tramway (120,000 yen), Hiroshima Tramway (400,000 yen), Ise Light Railway (75,000 yen), Hamamatsu Railway (400,000 yen), Shizuoka Railway (300,000 yen), Atami Railway (240,000 yen) and Shintatsu Railway (500,000 yen). It has been arranged that these companies should be wound up by the end of April when they are to be incorporated into a concern under the name of the Dai-Nippon Tramway Company. The new company will have a capital of 2,500,000 yen, of which 2,335,000 yen is to be taken up by the existing capital of the present eight companies, the remaining 165,000 yen being invited from the public. It is further said that in the event of amalgamation the ironworks conducted by Mr. Amenomiya will be purchased by the new concern.

RAILWAYS AND RAILWAY SUPPLIES

JEHORE STATE RAILWAY.—The section between Gemas and Segamat, a distance of 16 miles, was opened to traffic on March 1st.

SHANTUNG RAILWAY CO.—During the year 1907 this company carried 886,000 passengers and 395,000 tons of freight over its line.

YUET HAN SECTION OPENED.—The second section of the Yuet Han branch railway was opened to traffic the latter part of February.

GERMAN STEEL FOR JAPAN.—Consul Gracey reports that Japan has placed an order for 20,000 tons of steel rails with the German Steel Trust.

TOKKAIDO RAILWAY.—The doubling of this line is expected to be completed by November with the exception of four bridges and two tunnels.

PHILIPPINE RAILWAY COMPANY.—This company recently announced that no more timber for railway construction would be contracted for in Mindanao.

SUNGEI UJONG RAILWAY.—This line will be turned over to the F. M. S. government on the first of July next when important improvements and alterations will be made.

RUSSIAN STEEL FOR JAPAN.—Japanese representatives have been visiting the various steel plants in Southern Russia with a view to placing orders for a large quantity of steel rails.

KIAO-YI RAILWAY.—Arrangements have been completed with the concessionaires of the Tientsin-Pukow Railway, whereby the latter will operate this Chinese road as a branch line.

PEKING-KALGAN RAILWAY CONSTRUCTION.—The chief engineer of this work has been directed to construct a light railway to Petaling for the purpose of carrying supplies to that point.

RAILWAY PAPER.—The Canton-Hankow Railway has announced it will issue a weekly paper in Chinese containing a report of the progress made in construction and other information about the road.

PEKING-HANKOW RAILWAY REDEMPTION.—The Peking authorities are considering the raising of a domestic loan for the purpose of purchasing the Belgian Syndicate's interest in the Peking-Hankow Railway.

SHAOWHAN EXTENSION OF THE PINGHSIANG-SHANTUNG RAILWAY.—This proposed line which will facilitate the transportation of coal to the waterways has received the sanction of the Peking authorities.

INDO-CEYLON RAILWAY SCHEME.—The South Indian Railway authorities have sanctioned the extension of the Madura-Rameswaram railway from Mandapam to Dhanushkodi, the southern point of the island.

MONGOLIAN RAILWAY.—The Chinese government intends to build a railroad to Urga, which lies out of the Kiakhta, the trading post on the Russian frontier. Connection by rail of these two points will be an after consideration.

CANTON-HANKOW CONSTRUCTION SUPPLIES.—The directors of the Canton-Hankow Railway Co. have decided to order 60 construction cars from the Tongshon Railway Works, writes the correspondent of the *Hongkong Telegraph*.

RAILWAY HOSPITALS IN MANCHURIA.—A school of medicine at Mukden and hospitals at Mukden, Liaoyang and Tiehling, to cost in all in the vicinity of yen 500,000, will be established this year by the South Manchurian Railway Co.

MANCHURIAN STANDARD GAUGE.—The single standard gauge track between Dalny and Mukden was completed April 1st and it is expected that the wide gauge will be extended the entire length of the South Manchurian Railway by July 1st.

DOUBLING SIBERIAN RAILWAY.—The Douma is considering a bill providing for the appropriation of 175,000,000 roubles for the doubling of the Siberian Railroad and in addition an appropriation of 31,000,000 roubles for the construction of a new road from Tumen to Omsk.

HONAN RAILWAY CONSTRUCTION.—It has been decided to construct the initial line of this extensive system between Lohyang and Tungkwan and later extend lines to eastern and southern Honan. The sum of $8,000,000 has already been subscribed by the merchants and capitalists of Honan.

SHANGHAI THE TERMINAL.—According to the Shanghai-Hangchow-Ningpo Railway loan agreement the terminal of the line will be at Shanghai instead of Soochow. The British and Chinese Corporation makes the loan under imperial guarantee and the supervision will be practically Chinese.

AMUR RAILWAY CONSTRUCTION.—The Defence and Communications Committees held a joint meeting at St. Petersburg recently and voted in favor of an appropriation of 750,000 roubles to carry out the survey and another appropriation of 13,000,000 roubles for the construction of the first section.

BARNES WINS SUIT.—T. W. Barnes, who filed a claim for one million dollars against the American China Development Company, has been awarded $391,666 by the supreme court of New York. This sum is the amount recognized as his share in the profits for his assistance in securing the contract with the Chinese government.

EASTERN CHINESE RAILWAY.—Freight traffic on this line has fallen off severely since the Japanese secured control of the southern section and as a result the company has sold 2,000 grain cars to the Russian government for use on the lines in European Russia. A government loan of 7,500,000 roubles has been negotiated for the construction of the Ussuri branch of this line.

NEW LOCOMOTIVES FOR INDIA.—The East Indian Railway Company have ordered sixty more locomotive engines from England. Of these 28 are to be bogie passenger engines with tenders of the standard 4-4-2 or Atlantic type; 22 bogie passenger engines with tenders of the standard 4-6-0 or P. class type; and 10 goods engines with tenders of the standard 2-8-0 or G. class type.

CHANGCHINFU-KIRIN RAILWAY CONSTRUCTION.—Late reports are to the effect that construction work will be no longer delayed on this line which is to be built with Chinese and Japanese capital jointly. Each country has appointed its representative and the Chinese government has contributed taels 4,000,000 and granted permission to cut the necessary timber along the routes. The materials will be furnished by Japan.

JAPANESE RAILWAY NATIONALIZATION.—The price of the Fukishima Railway, nationalized, has been fixed at 1,341,431 yen. After substracting the railway loan amounting to 644,271 yen which is to be borne by the Government the remainder will be paid in public bonds valued at 697,200 yen. The price of the Nishinari Railway purchased by the Government has been fixed at 2,184,059 yen, including 1,704,509 yen for railway and 479,550 yen for additional business.

NEW JAPANESE RAILWAY FRANCHISES.—The following new railways have been granted a charter by the Japanese authorities:

Tama Railway, 5 mls. 11 chs., from Sakai station, Kobu line to Koremasa, Kita Tama district, Tokyo (capital 280,000 yen); Tatsuno Railway. 3 mls., from Tatsuno station, Sanyo line to Tatsuno machi, Iho district, Hyogoken (capital 150,000 yen); Aichi Railway, 15 mls. 60 chs., from Chigusa, Aichi district, to Inuyama, Niwa district, Aichi-ken (capital 1,200,000 yen).

NEW INDIAN RAILWAY PROJECTS.—The Railway Board have sanctioned a survey being made by the agency of the administration of the Jodhpur-Bikaner Railway, for a line of railway on the meter gauge from Mirpur Khas station on the British section of the Jodhpur-Bikaner Railway to Jhudo, a distance of about 47¼ miles. This survey will be known as the Mirpur-Khas-Jhudo Railway survey.

Sanction has also been given to a survey being made by the agency of the Bombay, Baroda and Central India Railway Company for a railway on the 2 feet 6-inch gauge from Nadiad to Kapadvanj with an extension to Meghraj *via* Malpur, and a branch from Malpur *via* Lunavada to Godra, a total length of about 112 miles. The survey will be known as the Nadiad-Kapadvanj-Meghraj Railway Survey.—*Railways*.

PUBLIC AND PORT WORKS, DOCKS, WHARVES, ETC.

CEBU-TOLEDA ROAD.—The sum of ₱167,600 has been appropriated for the completion of this road which when completed will be 25 miles in length.

CEBU CUSTOM HOUSE.—A bill appropriating ₱200,000 for the construction of a new custom house building at the city of Cebu has passed the Philippine Assembly.

NEW TOKYO HOTEL.—A scheme is on foot to construct a six million yen hotel at Tokyo for the accommodation of visitors to the exposition to be held there in 1912.

JAPANESE OBSERVATORIES.—Branches of the Yokohama observatory office have been established at the following places: Misaki, Manadsuru, Yose, Migo, and Takatsu.

AUSTRALIAN SMALL ARMS FACTORY.—The Australian government will soon advertise for tenders for the construction and equipment of a small arms and ammunition factory.

YALU BRIDGE.—The projected iron bridge across the Yalu to cost yen 2,000,000 was commenced last month and will be built under the supervision of the residency general at Seoul.

ARSENAL AT TIENTSIN.—The Grand Council has directed the viceroy of Chihli to expand the arsenal at Tehchow and to establish a big arsenal at Tientsin. The cost is estimated at taels 16,000,000.

YELLOW RIVER BRIDGE.—This bridge which is to span the river at Lanchou. Kansui province, will cost Taels 165,000. The contract has been let to Messrs. Telge and Schroeder & Co. of Tientsin.

LIAOYANG PUBLIC WORKS.—The South Manchurian Railway Co. proposes spending $200,000 in providing a water supply system, a public park and a theater for the city of Liaoyang during the year.

CHINESE NAVAL BASE.—The authorities at Peking have decided to establish a naval base at a natural harbor situated north of Mirs Bay on the coast of the Waichau prefecture in Kuangtung Province.

KWANTUNG PUBLIC WORKS.—The estimates for the year submitted by the Kwantung government include the sum of Yen 1,679,393 for the construction of roads, bridges, buildings and other public improvements.

SWATOW CATHEDRAL OPENED.—This building which has taken about five years to construct under the direction of the Missions Etrangères de Paris, was opened formally, February 9th. The structure is of chunam, the pillars being cast and built up in sections. It cost $60,000.

HOANGHO RIVER AND GRAND CANAL.—The salt officials of Southern Shantung who have been complaining that the canals were becoming impassable for freight boats will have their petitions recognized and extensive dredging operations for the deepening of these waterways are to be inaugurated.

WHANGPOO CONSERVANCY.—The breakwater across the river at the head of Gough Island is being strengthened and the dredger is kept continually employed at that point. The work of extending the breakwater at the lower end of Gough Island opposite the custom house and the other beyond Prince's wharf at Woosung are being extended and the work generally during the month has progressed favorably.

TIENTSIN WATERWORKS.—The report for the year shows an extension of the system including 12,600 feet of new mains which brings the length of piping up to about 19 miles. An addition of 25 hydrants was made, making the number 155. These extensions provided for the supply of water to the district of Hupeh and two villages to the north-east of the city besides improving the service in the inner city and in the Russian and Austrian concessions.

SEOUL WATERWORKS.—The installation of the water system at this point began in the fall of 1906 and it is expected that it will be completed and ready for operation by September of this year. About 37 miles of steel and cast iron piping necessary for the works were included in the purchase of materials from British manufacturers. The Japanese section of the city has entered into a contract with the company for the supplying of water to the public buildings in that section and for other public purposes.

PAHANG PUBLIC WORKS.—The provision made for public works in the state of Pahang includes a system of sewers for the town of Kuantan which is estimated to cost $33,000 when completed; new port lights and a large sum in the construction of roads and bridges. The total appropriation for public works for 1908 is $98° 025. Of this $330,000 will be spent this year on the Kuantan-Benta road construction which when completed will be 150 miles in length and cost in the vicinity of a couple of millions. This road traverses the most fertile agricultural lands and rich mineral country.

LIAOU RIVER IMPROVEMENTS.—The merchants of the city of Newchang have subscribed about 60,000 taels to be expended in improving the water way. The project includes the building of a concrete dam about 75 miles up the Liaou River from the city where it forks. At the present time the division of the river at this point lessens the depth in the fork that flows to Newchwang. The building of the dam would block up the other fork and turn all the water into the Newchang branch, and provide sufficient depth in the river channel for the operation of vessels up the river. A report on the feasibility of the scheme has been ordered prepared.

BANGKOK WATER SUPPLY.—The Siamese budget for 1908 contains provision for the installation of a modern system of water supply which when completed will cost in the vicinity of 3,000,000 Ticals. With the exception of a few details, the plans have been outlined. They provide for a source of supply in the river at Chiengrak, the filtering and the carrying of the water by canal to the city and for its economical distribution to all parts of Bangkok. Pressure will be obtained by the erection of water towers. The work will be carried out under the direction of the engineering division of the sanitary department, says the *Bangkok Times*.

SHIPBUILDING, GENERAL MARINE, FISHERIES, ETC.

HOKKAIDO HERRING CATCH.—The total catch reported for 1907 was 515,202 koku, a decrease from the previous year.

HANYANG IRONWORKS WHARF.—This wharf which is situated on the Pooting side of the river and recently completed is now in use.

MORE U. S. TRANSPORTS.—The purchase of the steamers *Shawmut* and *Tremont* of the Boston line by the United States to be used as transports is being considered at Washington.

MERGUI PEARL FISHERIES.—The total returns from these banks for the year 1907 were 89 tons of mother-of-pearl valued at Rs. 91,469 and three tons less than the previous year, although prices were higher.

AOMORI-VLADIVOSTOK LINE.—The merchants of Aomori have interested the O. S. K. in the opening of a direct line from that port to Vladivostok. This service will be maintained from April to November each year.

STEEL BOATS FOR HUNAN.—The Hunan authorities are experimenting with some steel craft of Japanese construction and built in three sections each in their use for expediting transportation across small rivers in active military operations.

CHEFOO NAVAL SCHOOL.—Chinese and foreign teachers are being engaged to take charge of the naval college to be opened at Chefoo. It is understood that over 80 students belonging to the better class have signified their intention to take the course.

CHINESE GUNBOATS COMPLETED.—The last of the four gun-boats built by the Kawasaki Dockyards was delivered, the latter part of February. The two torpedoers for the Hupeh squadron also being built by the Kawasaki yards were expected completed early this month.

NEW VESSEL FOR THE STRAITS.—The Straits Trading Company has placed an order with the Caledon Shipbuilding Co. of Dundee for the construction of a vessel which will be of the same type as the Kinta. It will be christened the Ipoh and is expected to arrive in July.

JAPANESE IMPERIAL RAILWAY STEAMERS.—The *Hirafu Maru*, one of the two turbine driven steamers of 1500 tons purchased to connect the railway terminals at Aomori and Hakodate, has been put in commission and found most satisfactory. She has a speed of 18 knots.

NORTH GERMAN LLOYD SUBSIDY.—As an inducement to establish a regular monthly service between Sydney, New Guinea, Hongkong and Japan and in addition, to resume the New Guinea and Singapore service, an additional subsidy of £25,000 a year has been granted the company.

PEARLING IN DAVAO GULF.—The *Mindanao Herald* announces that a fleet of fifteen luggers are operating at the pearl banks. recently discovered in the Samal Straits which separates the Island of Samal from the town of Davao. A ton of shell has been gathered by one of these luggers in five days' operations, but few pearls have been found.

NEW BUND AT WUHU.—The foreign steamship companies have secured the following concessions along the bund of the new international settlement at Wuhu on the Yangtze:

Messrs. Butterfield & Swire secured 1,137 feet; the Hamburg-American line, 900 feet; Jardine, Matheson & Co. has gained rights to 605 feet, while the Japanese Nippon Yusen Kaisha controls 500 feet.

JAPANESE GEODETIC SURVEY.—The charting of the coast of Japan and adjacent territory is being carried on by the Japanese naval authorities. The coast of Korea is now engaging attention and the work will be completed by the end of the year, after which it is expected that the following program will be carried out: Formosa and Yetrof, complete 1910; Sagkalien, the seven isles of Idsu and the rest of the Kuriles to be completed in 1920.

SHIPBUILDING IN BRITISH NORTH BORNEO.—During the year 1907, The China Borneo Company's yards turned out five lighters and four launches besides the repair work. The North Borneo Trading Co.'s yard has three lighters and one river boat to its credit besides extensive repair work and overhauling. The company has now in hand a 500 ton schooner which when completed will be the largest vessel built on that coast, says the *Herald*.

AMUR GUNBOAT FLOTILLA.—The sum of 20,000,000 roubles will be expended by the Russian government in the construction at the Baltic and Sormovsky shipbuilding yards of two different types of shallow draught gunboats. For the mouth of the Amur, heavier and larger vessels have already been built. The upper waters of the river will be patrolled by the lightest of the craft and the medium draught for the lower waters. It is understood that the flotilla will be completed by 1910.

JAPAN'S MARINE PRODUCTS INDUSTRY.—The total value of export of these products for the year 1907 amounted to yen 12,933,131, an increase of over a million and one-half yen over the previous year. The chief exports are dried cuttlefish, kombu(seaweed), cut seaweed, isinglass (colle-vegetable), dried earshell, fish and whale oil, dried lobster, trepang (beche-de-mer), pedicle, coral, codfish, shark fins, sardine, dried bonito, salted fish, shell fish, oyster, canned fish, canned seaear, salt and others. Besides these last year 103,209 yen worth unrefined iodine and 156,067 yen worth iodine potash were exported as drugs to the amount of at least 600,000 yen. More than 400,000 yen of seal fur was also exported last year.

MINES, MINERALS AND THE METAL TRADE

KWANTUNG MINES.—All mining enterprises in this province will be under control of a semi-official company.

URGA GOLD MINES.—A Russian mining engineer has petitioned Peking for a license to develop gold deposits at Urga, Mongolia.

SHANTUNG MINING COMPANY.—Advices from Berlin announce that the capital of this company has been increased by three million marks.

RAUB AUSTRALIAN OUTPUT.—For the four weeks ending February 17th, the yield including the cyanide output amounted to 1908 ounces of gold.

NEW INDIAN COAL DEPOSITS.—Prospectors report extensive coal deposits near Nagpur, India, and preparations have been concluded for an extensive reconnaisance.

PAHANG TIN EXPORT.—For the month of January the export of block tin and tin ore amounted to 3,329 piculs compared with 2,170 piculs for the corresponding term, 1907.

NEW PAHANG TIN MINING COMPANY.—The Samantan Tin Mines Co. has been registered in London with a capital of £50,000 for the purpose of acquiring the Samantan mining property in Pahang.

FUSHUN COAL.—The demand for the output of these mines is reported to be increasing throughout Manchuria. The Samshu breweries are using the product and will consume several thousand ton a year.

HAINAN MINING CONCESSION.—Mr. Foo Choo Choon the well-known mine owner of the F. M. S., has secured a concession for the control and development of rich gold mining concessions in the island of Hainan.

COAL IN TOLOSAN ISLAND.—German capitalists have organized to develop coal deposits found on the island of Tolosan, situated opposite the port of Kiau-chou. Other minerals are reported in large quantities on this island.

PONTIANAK COAL CO.—This corporation has been registered at Batavia with a capital stock of 250,000 guilders. It is the purpose of the company to develop and operate coal mines in Dutch West Borneo. Several concessions at Salimban have been secured by the company.

MINING IN WESTERN SIAM.—A great deal of prospecting is being carried on in western Siam and at an early date the Royal Department of Mines will extend its operations to these provinces so as to be in a position to entertain applications and otherwise encourage development.

MINERAL OIL AT LABUAN.—A new oil spring has been discovered on the island of Labuan. The samples have been submitted to the Borneo Company Limited and an investigation will be made to ascertain the value of the prospect. The oil has the odor of kerosene and burns freely.

BORNEO COAL.—The product of the Silimpopon mines in British North Borneo is finding a steady demand at Sandakan where a coal wharf and depot has been built. Steamers calling at that port have found the product satisfactory and the mines are kept busy supplying the market.

VICTORIA GOLD YIELD.—The report for the year 1907 shows an output of 754,270 ounces, worth approximately £3,017,080, a decrease in production of 80,505 ounces from the preceding year. The aggregate value of gold production from this state since the discovery is £279,-592,680.

MONGOLIA MINERAL WEALTH.—A party in charge of a German engineer and a Japanese engineer and comprising twenty students from Hupeh has been directed to make a survey of Mongolia for the purpose of making a complete report on the mineral wealth and the most desirable methods for its development.

SIBERIAN MINERAL DEPOSITS.—Iron, copper and sulphur deposits have been discovered in the mountain region on the island of Shantar situated at the extreme north of the Udsky district, north of Primorya. In one section of the island referred to, three valuable springs of mineral water have also been reported.

I-HSIEN COAL MINES.—The Chung Hsing Coal Co., capital $200 000, operating in southern Shantung, has declared a dividend of 10% for the year. This plant has a daily output of three hundred tons. The completion of a railway to connect with the Imperial canal will give a great impetus to the operations of this company. Chinese and German capitalists are interested in this project.

OIL CONCESSIONS IN KOREA.—Japanese and American capitalists have secured a concession of 8,000 acres of land near Pyeng Yang for the purpose of prospecting and developing deposits of oil and natural gas in that region. It is understood that the concessionaires are so sanguine of success that they have already applied for a franchise to supply the city of Pyeng Yang with gas for lighting purposes.

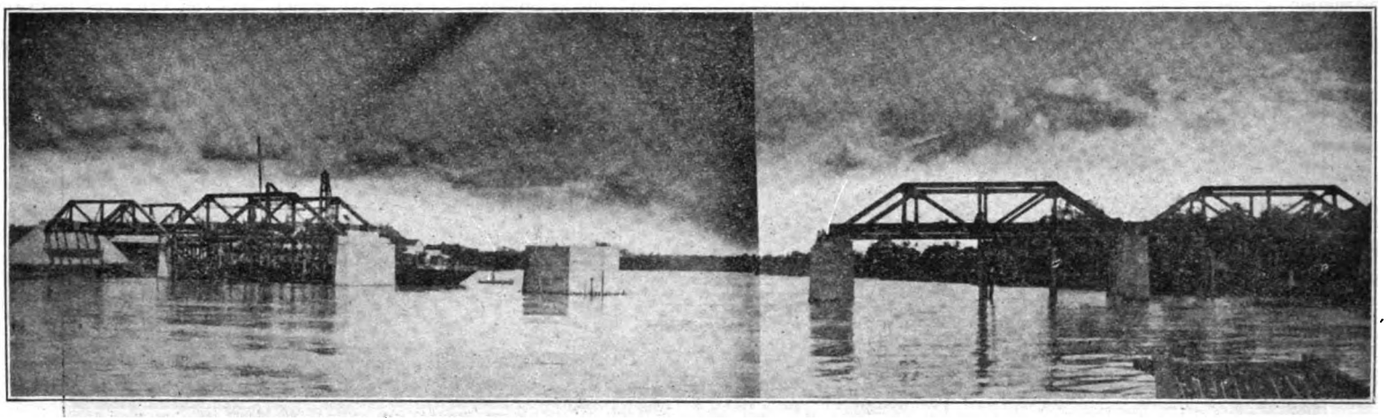
CHINESE AND THE USE OF COAL FOR FUEL.—In view of the ignorance among the natives in regard to the economical use of coal for fuel, the Chinese Engineering and Mining Co. has open up an office in charge of an expert for the purpose of teaching the Chinese how to construct grates and stoves which will burn coal to advantage. This information is given without charge, says the *Peking and Tientsin Times*.

JAPANESE COAL DEALERS' GUILD.—The *Nagasaki Press* announces the organization of a guild among the coal dealers there, exclusive of the Mitsu Bishi Goshi Kaisha and the Mitsu Bussan Kaisha, and which states that its purpose is to give better service to customers and to develop trade, incidentally to promote the prosperity of Nagasaki. The *Press* expresses the hope that it is not the signal for an advance in price.

HANKOW STEEL PLANT.—The expenditure of six million dollars of Chinese capital in the construction of steel works at Hankow is interesting the large steel manufacturers of Europe and America. Inquiries have been received at the principal steel manufacturing centers with a view to placing orders, where the best and most economical service may be secured. The prospects for this plant are believed to be bright in view of the proposed railway development in China.

NEW CHINESE REGULATIONS FOR MINING REVOKED.—The protests of the powers against the clauses of the recent code adopted by Peking, which requires the prospector to leave the working of his prospect to the land owner or the government at the latter's option or to turn over one-half of the output to the government, if he worked it himself with the payment into the coffers of the state of an additional one-tenth of the net profits, have been favorably considered at Peking and the regulations have been revoked

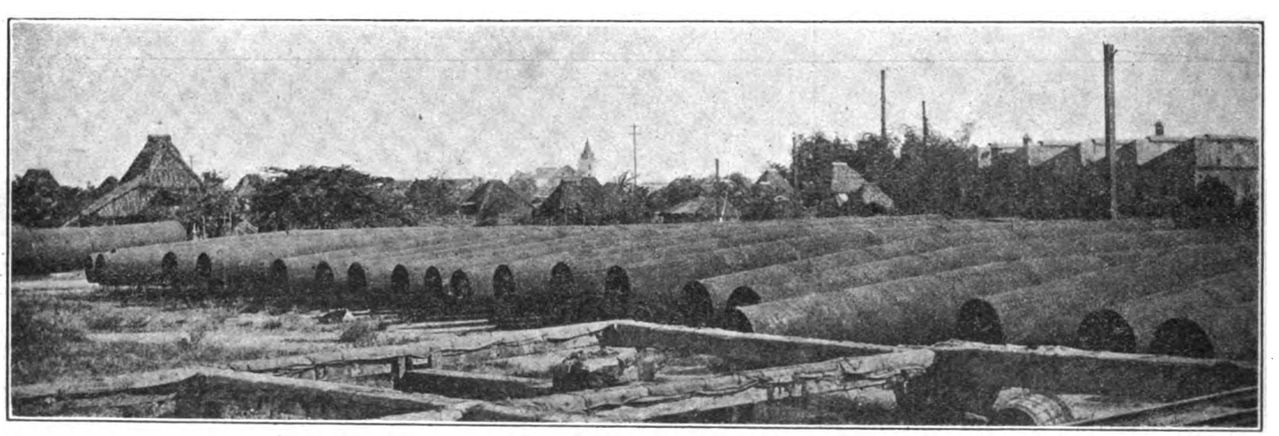
company's shops and erected by the company in its entirety, including the foundations. This bridge, a photograph of which is reproduced, is 450 feet over all and comprises two spans of 70 feet each and two spans of 80 feet each with a swinging span of 150 feet. Both piers and abutments are built or concrete and rest on bed rock 20 feet below water level. The total weight of steel in this bridge is 400 tons.



VIEW OF THE MANILA RAILWAY CO.'S DOUBLE TRACK R. R. BRIDGE ACROSS THE PASIG IN COURSE OF ERECTION—FABRICATED IN THE STRUCTURAL STEEL SHOPS OF THE ATLANTIC, GULF AND PACIFIC CO.

Another important feature of the work of these shops is the construction of steel tanks. Two substantial tanks, complete in the matter of design, construction and erection, were installed by the company for the U. S. Quartermaster's Department at Fort McKinley, recently. These tanks are of difficult construction, having hemispherical bottoms, built on 75 feet towers, each having a capacity of 100, 000 gallons.

The company has now in process of fabrication, large orders of structural steel which will be diverted in the shape of highway bridges to every province in the islands. The present capacity of the plant is about 800 tons of fabricated steel a month and this will be increased from time to time to meet the demand.



STEEL CYLINDERS FOR NEW WHARVES 6′ 6″ IN DIAMETER AND 47′ IN LENGTH, FABRICATED AT THE STRUCTURAL STEEL SHOPS ATLANTIC, GULF AND PACIFIC CO.

The encouragement of permanent enterprises of this character involving large investment of capital, employment of a large number of trained industrials, and the establishment of complementary industries, is a matter that should engage the attention of the progressive inhabitants of the archipelago as well as the Philippine administration and with special reference to the latter in carrying out its established policy.

OBITUARY

Hongkong was shocked by the untimely death of Mr. A. H. Rennie, manager of the Junk Bay Flour Mills, who jumped into the harbor on April 14th, while temporary insane. It is believed that business worries were responsible for the sad tragedy. The deceased was one of the most respected and enterprising businessmen of Hongkong.

He was a native of Canada, born in 1857. He was a graduate of Hamilton Grammar School and Upper Canada College, Toronto, Ont., and after graduation served as private secretary to Premier Norquay of Manitoba, and during his service in that capacity, which was concluded in 1889, he was delegated to negotiate a loan for that province in England. In 1890 he proceeded to Hongkong where he served the government consecutively in the positions of correspondence clerk in the public works department, acting assistant harbor master and acting superintendent of water police, and secretary of the sanitary board. In 1893 he accepted the position of representative for the Portland Flour Mills and Puget Sound Milling Co. and retired from the service later to look after these interests. Subsequently he interested Sir Paul Chater and Mr. H. N. Mody in the establishment of the Junk Bay Mills and according to the annual report recently submitted, the prospects for the company were all that could be expected. It is understood that fluctuations in the market involved the company in some large losses recently and since the passing of the deceased a receiver has been appointed.

OPENING OF THE SHANGHAI-NANKING RAILWAY

The first passenger train to pass over the Shanghai-Nanking Railway made the distance between the two points at an average speed of 35 miles an hour or 193 miles in five hours, thirty-seven minutes. The highest speed made during the trip was 57 miles an hour. This trip was made on March 28th and the road was declared open to traffic in April. The occasion was celebrated by an excursion over the line and the following guests participated in the epoch making event:

Sir Pelham Warren, K C.M G., H. M. Consul-General at Shanghai, and Sir Alexander Hosie, Commercial Attaché of the British Legation at Peking, together with Messrs. P. Alderton, S. Barton, E. F. Bateman, H. T. M. Bell, F. S. A. Bourne, W. Bullard, W. A. Carlson, E. W. Clements, N. E. Cornish, P. V. Davies, D. C. Dick, Dr. J. C. Ferguson, O. M. Green, J. W. Gresson, T. H. Harris, W. F. Inglis, F. C. Macdonald, A. M. Marshall, R. B. Mauchan, A. Michie, H. Morriss, E. Morriss, Comte d'Audiffret Pasquier, C. D. Pearson, Comte de la Rochefoucauld, A. Rose, R. W. Shaw, Leo Smith, T. Weir, W. Whittall and W. R. Wright. At Soochow the train was joined by Messrs. A. W. Cross, Customs Commissioner, and G. F. H. Acheson, while at Chinkiang the following passengers boarded the train:—Mr. G. D. Pitzipios, H. M. Consul, Mr. F. E.

Shosen Kaisha's line to Tairen, the railways in Korea and the Osaka Shosen Kaisha's line to Formosa. It is further in contemplation to establish connexions with the South Manchuria Railway, the East China Railway via Tsuruga and the Chinese Railways. The Bureau's report alleges that strenuous efforts have been made to increase the comfort of guests; that agreements have been concluded with Messrs. T. Cook & Company and with the Society *Wagons-lit*, and that relations have been effected with all the principal hotels throughout the country with a view to giving greater facilities to foreign tourists. Of course there has not yet been time to witness the results of these various arrangements.

"Turning to telegraphs and telegrams, we find that the total length of lines in operation when the roads were taken over was 22,303 miles; that it has been increased to 22,740 miles; that 3,873 miles will be added during the current year and that 5,483 miles are projected.

"There has of course been much to do in reducing the rolling stock to something like uniformity. but the report necessarily fails to give any clear indications of the progress effected in that direction.

Finally we have the financial side of the question set forth as follows:

Official Estimate of the Working of all the Nationalized Lines during the Year commenced April 1st, 1907, and ending March 31st, 1908:—

	Yen.
Gross Revenue	71,066,470
Expenditures	40,586,972
Net Profit	30,479,498

Actual Results of 3 months' working from April 1st, 1907, to December 31st, 1907:—

Gross Earnings	52,864,867
Expenditures	24,830,014
Net Profit	28,034,852

It will be observed that the estimate of gross profits will probably prove to have been a little over the mark, but the actual expenditures being considerably less than the estimate, the net profits are likely to be some 5 million *yen* more than was anticipated.

It must be admitted that all these facts do not go to confirm the pessimistic views expressed in so many quarter. One is led to think rather that a final judgment is premature."

CHEFOO HARBOR IMPROVEMENT

The prospect for the early construction of a greatly needed breakwater for Chefoo harbor is growing brighter.

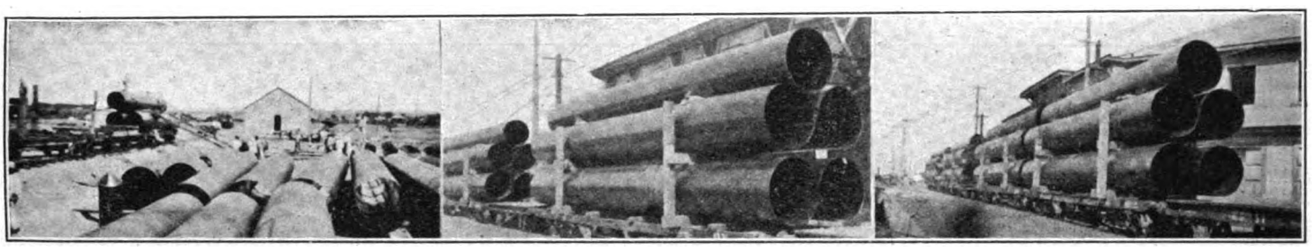
The *P. & T. Times* announces that a meeting of the leading merchants of Chefoo was held early last month and after some discussion it was decided that the necessary improvements would cost about 2,000,000 dollars and half the amount was immediately subscribed by those present. It was decided to proceed with the work at once and raise the balance necessary later on. It is also proposed to levy a tax. on steamers to meet part of the deficiency.

PROPOSED CHEFOO-WEIH HSIEN RAILWAY

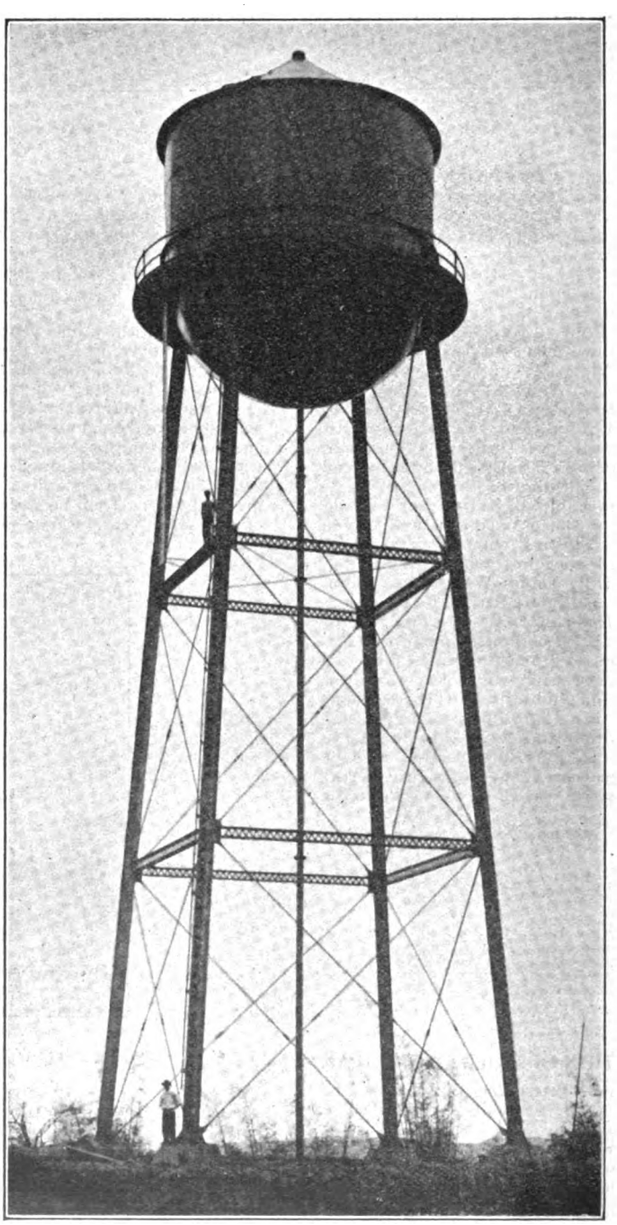
According to the correspondent of the *P. & T. Times* at a recent meeting of the leading native merchants at Chefoo it was decided to send out circulars inviting subscriptions to an issue of debentures amounting to $2,000,000, that is 400,000 debentures of $5 each, payable in instalments of 20, 30, and 50 per cent, the last instalment to be completed before the end of 1910.

This sum of two million dollars is to cover the initial cost of the line only. The total cost of the line to Weih-Hsien is estimated at $10,000,000. The merchants will invite further subscriptions when necessary, later on. Foreigners will not be allowed to purchase debentures from the native holders.

The farmers and other owners who will have to be expropriated of their lands for the construction of the proposed route will be paid for their property in debentures but not in specie.



(1) UNLOADING 42" RIVETED STEEL PIPE AT SAN MATEO FOR MANILA WATERWORKS.—(2) STEEL PIPE LOADED ON MANILA RAILWAY CO.'S CARS.—(3) ANOTHER VIEW OF PIPE IN TRANSIT.—FABRICATED BY THE ATLANTIC, GULF AND PACIFIC STRUCTURAL STEEL WORKS



STEEL TANK WITH 75 FOOT TOWER—CAPACITY 100,000 GALS. FABRICATED AT THE ATLANTIC, GULF AND PACIFIC CO.'S STRUCTURAL STEEL SHOPS

SHANGHAI-SUNGKIANG RAILWAY

The opening of the railway which is to join Shanghai with Hanchow and Ningpo, as far as Sunkiang, a distance of 24 miles, on April 20th, for passenger and freight traffic was made the subject of favorable comment by the Shanghai *Times* with special reference to the fact that the entire project has been carried out by Chinese. The *Times* says:

"In the midst of all the commotion about loans and concessions this line has gone quietly ahead, gradually covering the miles between here and Sungkiang, and at length is able to carry traffic between the two cities. The whole scheme, down to the minutest detail, has been carried out by Chinese. The whole of the permanent way has been supplied from Chinese sources, and much of the rolling stock also. Unforeseen difficulties with the quarry proprietors alone have prevented the present section being fully opened for passenger and goods traffic even before this. As it is, a limited freight traffic is to be commenced from to-day, and we may expect soon to see the line working full time.

"Bridging and permanent way appear to be alike thoroughly sound, and it is to be hoped that all succeeding Chinese railways will hold by this tradition. Sound workmanship at the beginning will save a vast expense in repairs and up-keep later on, and any other policy is a policy of waste. There appears little doubt that the Chinese, whom Dr. Arthur Smith has described as the most economical people in the world, will see the wisdom of building the best they know.

"The district through which the railway runs is apparently one of great agricultural wealth.

"Those of us who are acquainted with the excellent investments that agricultural light railways have become in some parts of Europe and America may easily understand the boon that such a railway must be in a district like that through which the line of which we are speaking runs. It seems probable that the line will be a highly successful enterprise. There are no longer the prejudices against new modes of locomotion and communication that existed in China a generation ago and it may be expected that the peasantry will from the first avail themselves of all the advantages which the line offers them. The covering of China with a network of lines opening up districts like that between Shanghai and Sungkiang would result in an enormous increase in the trade of the Empire."

FRENCH POWER STATION AT SHANGHAI

The new power station of the Cie. Francaise de Tramways et d'Eclairage de Shanghai at Lokawei is described by the *N. C. Daily News* as follows:

"The Lokawei Station is designed to supply current for both tramways and electric light in the French Settlement, the same engines and dynamos serving both purposes, with one difference—that for tramways the dynamos are hyper-compounded i. e., the winding in series of the magnet is in the circuit, whereas for lighting the excitation is shunt only.

"In the Boiler Room three boilers of the Babcock and Wilcox type, with superheaters, have been erected and two more are expected shortly. The heating surface of each boiler is 2,250 sq. ft., the grate area being 43 sq. ft., the production of steam 6,600 lb. per hour and the pressure about 135 lb. per square inch. A "Green Economiser," driven by an electric motor, supplies the necessary water at a temperature of 175° Fahr. Two feed pumps, one Worthington and the other electric triplex, feed the boilers.

"In the Engine Room are three groups of 250 kilowatts and one group of 50 kilowatts has been erected and another group of 350 K. W. will be added in the course of a few months. Each group of 250 K. W. (600 Volts×415 Amperes) is driven by a compound horizontal steam engine working at 125 revolutions per minute. The 50 K. W. group is driven by a rider extension engine at 200 revolutions per minute. This dynamo is of the Dolivo Dobrowsky Patent (500 Volts×100 amperes) and a self induction coil will allow the dynamo to be used for the three wire distributing system. All the engines have surface condensers but for the time being will be used as non-condensing for the supply of water from the creek is not complete.

"For the distribution of current for lighting purposes the three wire system has been adopted and two equalizers working either as generators or motors will regulate the distribution of the current. The switchboard is divided into two sections, one for tramways and the other for light. Automatic circuit breakers are fixed for both purposes. Hand circuit breakers are so disposed that they may be put in connexion either with the tram bars or the light bars according to the use of the dynamos.

"The rolling stock at present in the car sheds consists of 28 cars exactly similar to those in use in the International Settlement."

Forty members of the Shanghai Society of Engineers and Architects headed by President H. King Hiller visited the plant April 25th and were taken over the property by General Manager and Engineer-in-Chief M. M. Coursier, Resident Engineer M. Chateau and M. Murat Electrical Engineer.

WELCOME SOCIETY FOR JAVA

A correspondent of the FAR EASTERN REVIEW, writing from Batavia, advises that the Dutch Government has granted a subsidy of 25,000 guilders for the establishment of a Welcome Society for the reception of tourists in that delightful colony. An equal amount to that subscribed by the enterprising government has been advanced by the businessmen of Java. The organization is now perfected and visitors to Batavia will be provided with attractive guide books in English and guides speaking the English language, and thoroughly versed in the attractions of the colony, will be made available to tourists.

This innovation will be gladly welcomed by visitors to the colony and is an indication of the progressive spirit abroad among the businessmen of Java.

ANOTHER HONGKONG AIRSHIP

The latest competitor for recognition as an aerial navigator is introduced by the *China Mail* in the person of Mr. George Lanzius, the well-known mining expert of Hongkong, who intends patenting his airship in America.

The following description is given by the *Mail*:

"It is to be built entirely of aluminum, cigar shaped and comprising a total weight of 20 tons and a carrying capacity of 20 tons. She will run in any reasonable weather 40 miles an hour with a carrying capacity of 20 tons; her actual horse power will be 600 and the engines weigh 5 tons maximum. She will be able to float in the air for an indefinite period but under way at 40 miles an hour she will be able to travel a distance of 2,000 miles.

"Mr. Lanzius claims that the atmospheric pressure will have no effect whatever on his airship and during the various climatic conditions through which it passes, it will be unnecessary to discharge any gas in order to keep it at the required distance from terra firma This also does away with the necessity of carrying ballast.

"Although it is extremely unlikely that an accident will happen," proceeded Mr. Lanzius, "it will be so constructed that it will descend like a parachute and remain within a distance of ten feet from the ground."

The inventor has been working at the scheme for the last nineteen years, and its primary object is to be used for commerce, and in this respect our informant is confident it will ultimately be possible to convey the mails from London to Hongkong in twelve days, or from London to New York in two days, not to mention getting round the world in well under twenty days, which is only half the time it is possible to do the distance in at the present time.

It is not an airship but rather of the nature, as Mr. Lanzius preferred to term it, of a balloon, and will be entirely different from that invented by Count Zeppelin of Germany.

This is the second aerial machine devised in Hongkong, the first (as described in the *China Mail* some time ago) being invented by Mr. Tse Tsan Tai.

NEW PUBLICATIONS

Subject Matter Index on Mining, Mechanical and Metallurgical Literature for the Year 1902, issued by the North of England Institute of Mining Engineers and edited by the Secretary, Mr. M. Walton Brown, is a remarkable compilation of references upon subjects of special interest to mining and mechanical engineers. It contains an alphabetical list of publications indexed geographically; index to the alphabetical list and a subject matter index covering every conceivable subject as well as an index of authors. Published by the Institute at Newcastle-upon-Tyne, Eng.—Price, 42 shillings.

Manila, The Pearl of the Orient, by The Manila Merchants' Association, is a new guide book to the Philippines containing an interesting compilation of the attractions of the capital city, Manila. It is distributed by the Association and, as announced in the preface, its purpose is to disseminate information among the tourists about Manila, many of whom, according to the editor, who quotes Mr. Dooley's friend Hennessy, "Hardly know whether the Philippines are Islands or canned goods." The volume is appropriately illustrated and contains maps of the Walled City, the City of Manila and the Philippine Islands.

Railway Enterprise in China, by P. H. Kent, and published by Edward Arnold, London, Eng., is received. The author announces in the preface that his aim is to give a succinct and unbiassed history of the origin and growth of railway enterprise in China, an important feature of the Far Eastern Question, and that the arrangement of the matter is not strictly chronological but rather chronological, subject to geographical conditions. The volume fully meets the purpose announced by the author and is probably the most valuable publication, as a source of authentic information, that has come out of the Orient and will prove of the greatest value to students of Chinese history. The author divides his subject into three stages—the history of the attempts made by foreigners to allow the introduction of railways; a progressive movement emanating from the Chinese themselves, and the era of concessions in which the dominant feature is foreign control. The volume comprises eighteen chapters with appendices containing the different concessions and loan agreements relative to the railways, together with maps of the different defined systems and a general railway map of China. Price 12s. 6d. Net.

The Directory & Chronicle for China, Japan, Corea, Indo-China, Straits Settlements, Malay States, Siam, Netherlands India, Borneo, The Philippines, Etc, for the year 1908 (forty-sixth year of publication), issued from the Hongkong Press Office, Hongkong, has reached our desk and is well up to the standard of previous publications with the compilation brought up to date. Price 30 shillings Net.

Jubilee Number of The Indian and Eastern Engineer is more than a representative issue of the oldest engineering journal in the East. It was established by Messrs. W. Newman & Co. in April, 1853, and during its history it has been associated with the marked development of India and the East. The Jubilee issue contains articles reproduced from the publication appearing fifty years ago, among which is the reproduction of photographs of the launching of the Great Eastern, the greatest engineering event of that period. Besides these special features the journal is replete with interesting articles that bring the publication up to its highest standard. "The Railway Question in Manchuria" is the subject of special comment and an illustrated description of the Barsi Light Railway, the finest in India, takes up an important space in this issue. Among the other subjects dealt with in "Notes on Current Engineering" are: "The Conquest of the Air," "L'Houille Blanche" (White Coal). A French colloquialism for electricity derived from water-power). "The Gyroscope," "Windmills & Electric Power."

Volume V

June 1908

Steel Coal Cars or Peking-Kalgan R.R. Specifications of fifty 20-ton all-steel coal wagons for this railway made by the Leeds Forge Company.

The New Shantung Railway The "Celestial Empire" had reviewed the progress of construction of this railway, known as the Tai-tsao line.

The Port of Swatow, This report contains one paragraph about the Swatow-Chao-Chow railway, which had nine stations.

The Shantung Railway A brief history of this 245 mmile-long railway completed in 1904.

The Shantung (German) Railway, a report that a dividend of 4% had been paid.

Peking and Kalgan Railway Tunnel , a report that the piercing of the tunnel between the Kalgan Pass and and Kalgan (Chang-chia-kao) had been accomplished. The project was under the Director Jeme, a Yale graduate.

Chekiang Railway, the section from Hangchow to Linping was opened 14th May.

Chengchow-Honanfu Extension, progress was reported as slow.

Keelung-Takao Railway, the newly opened line cost ¥25 million and took 14 years to build.

Branch of Peking-Hankow Railway to Shanghai, it was decided to construct this branch.

Peking-Kalgan Railway Extensions, extensions from Kalgan to Kulun, Jehol and Suiyden would probably be constructed at an early date.

Chengting-Taichow Branch, the Belgian Syndicate had begun construction of this feeder branch for the Peking-Hankow line.

Railway to Turkestan, The military Governor of Ili had requested permission to build a line from Ili to Chinese Turkestan.

Tientsin-Pukow Railway, the proposed route would pass through Suchow, Linni, Fenyang, Tingyuan, Chochow and Kiang-Pu-Hsien.

Labour for Anhui Railway Construction, local natives were unwilling to work on the line necessitating employment of labourers from the Shanghai-Nanking construction project.

French Railway Enterprise, the railway from Tonkin had reached halfway to Mengtze.

Tsitsihar-Ananchi Railway, a contract for this 20 mile line had been awarded to a Tientsin company.

Amoy Railway, the station at the Amoy end was ready and shops were being built for the German and American locomotives. 20,000 sleepers had arrived but white ants were causing problems.

Manchurian Broad Gauge, the gauge conversion had been completed to Mukden with the various sections being opened between 21st and 25th May.

Canton-Hankow Railway Statement a short summary of the railways finances for the year 1907

July 1908,

The Peking-Kalgan Railway, a 2 page plus article reporting in detail the construction of this railway under the directorship of Jeme Tien Yow. Includes a sketch map of the route and 5 photographs.

Taotai Jeme Tien-Yow, M. Inst.C.E. , a biography of this American and British educated railway engineer who had built the Peking-Kalgan Railway, China's first railway to be built without foreign assistance.

Honan Railways, the Pien-Lok Railway opened to traffic on 13 June.

Canton-Hankow Railway, the line had been surveyed as far as Mongfukong.

Tsitsihar-Aigun Railway, a survey was under way.
Southern Manchurian Railway Loan, £2 million loan raised for reconstruction.
Shanghai-Soochow-Ningpo Railway Loan, loan oversubscribed.
Honan Railway Enterprise, the natives were agitating for two new lines, one from Kaifengfu to Chinanfu and the other to Chengtingfu.
Hoangho Railway Bridge, the Pukow-Tientsin line might bridge the river at Ai-Shan opposite Waishan.
South Manchurian Railway, American built Pullman coaches had arrived for service during June.
Tsin-Pu Railway Survey, the German price for surveying this line was considered too expensive.
Shanghai-Hangchow Railway, the line was expected to be completed by the following winter.
Tientsin-Pukow Construction, the site for the depot at Pukow had been selected and work would begin in August.
Canton Railway Construction, the contract for the Canton-Whampoa and Waichow-Chinchow lines was not being fulfilled.
Peking-Kalgan Railway, Taotai Chan Tien-yu (Jeme Tien yu) reported that he expected the line to be completed in 1909.
Tientsin-Pukow Survey, the survey was progressing.
Shanghai to Newchwang Direct, direct tickets would be available.
Amoy Railway, work is progressing slowly.
Shangtung Railways, the branch line connecting Chichiachwang and Te-chow was to be built by French and Belgian engineers.

August 1908

Amoy Railway Construction, a one page article describing construction of the line from Changchou in southern Fukien province to the coastal port of Amoy, a distance of 35 miles. The company had a capital of $2 million and all shareholders as well as the engineers in charge were Chinese. 30 lb rails were being used, manufactured at Hangyang. One German made locomotive was in use for the construction and others had been ordered from USA and Europe
South Manchurian railway Co. Report that the company had declared a half yearly dividend.
Tongshan Railway Station, a new Tongshan station opened on 1st July and was said to be one of the finest on the system.
Lu-Han Railway Washout, the floods in Hsiaokan Hsien had washed away 800 li of track.
Nanking Branch Line, the branch connecting Nanking City with the main line of the Shanghai-Nanking Railway would be finished that month.
Jehol-Kalgan Railway, the local military commanders had added their approval for this railway.
Chinese to be the Official Railway Language, Peking had decided to make Chinese the official language for railway business on the Peking-Hankow Railway.
Kaifengfu-Honanfu Railway, the section between Chengchow and Sishui, 50 miles west of Kaifeng, was opened on June 21st.
Loyang-Tungkuan Railway, the survey of the route had been completed under the direction of engineer D.P. Ricketts.
Railway Delegates to Visit America, shareholders of the Yunnan-Szechuan Railway had voted to send two delegates to USA to study railway construction, operation etc. and authorize them to purchase materials.
Kalgan-Kulun Railway, the railway was under consideration by Peking.

Canton-Kowloon Steel, 10,000 tons of steel had been ordered by the railway from the Hangyang steelworks.

September 1908,

A Review Of The Railway Situation In China, a comprensive 51 page report of the status of railways in China. The report covers all railways which then had an estimated 3,600 miles in operation. Lines under construction and projected would take the figure to over 9,000 miles. The report describes the recently promulgated organization of China's railways which were to split into four main trunk lines: The Southern Trunk incorporating the Peking-Hankow & Hankow-Canton lines with the following branch lines: Changsintien to Fentai making connection with the present Imperial Railways of North China and the Eastern Trunk Line; Liengsien-Yuli 9 m. coal line; Liuliho-Chowkowtien 10m. coal & lime line; Kaoyhsien-Liuchang 11m. coal line; the Cheng-tai or Shikiachwang-Taiyuanfu branch in Shansi covering about 150m. with further extensions projected; Taokow-Tsinghwachen Railway 93m. connecting with the Peking-Hankow line at Singsiang; Kaifeng-Honanfu Railway to be 115m. crossing the Peking-Hankow line at Chenchow and later to be extended to Hsianfu; Shantung Railway from the German settlement at Tsingtau to Tsinanfu 256m. with plans for a connection with the Peking-Hankow line at at Chentingfu; Tientsin-Pukou (Tsinpu) Railway 674m being built in two sections; Shanghai-Nanking (Houning) Railway 193m. connecting with the Woosung line at Shanghai; Shanghai-Hangchow-Ningpo (Hai-Hang-Ning) Railway to be 200 m.; Kashing-Ningpo Line (Chekiang) connecting Kashing with Hangchow 40m. and then on to Ningpo; Kiangan or Hufong Railway from the Tungkado terminus at Shanghai to Sunkiangfu and Kashing; The Anhui or Wu-Kwong Railway from Wuhu to Kashing; Canton-Hankow Railway or Yueh-Han to be 750 m. when completed with branch lines from Canton to Samshui 32m, Chuchow-Pinghsiang 66 m. coal line, the Szechuan Railway or Chengtu-Hankow line projected as 600m.,Canton-Kowloon line 122m divided into British and Chinese sections, Canton-Macao Railway projected only, Canton-Amoy Railway under survey only, the Kiangsi or Nanhsiang Railway from Kiukiang to Nanchang 100m., the Fukien Railway or Amoy-Foochow, Foochow to Kwantow proposed branch, Changchow-Chaochow proposed line, Swatow-Chaochow branch 24½m., Yunnan-Tongking Railway from Laokay to Yunnanfu 291m, Langson-Lungchow-Nanning-Pakhoi Railway projected as 220 m., Sunning or Ningyueung Railway 50m connecting Kungyifu via Sunning with Samkahoi, Bhamo-Tengyueh Line (Yunnan) projected 150m narrow gauge line. The Northern Trunk Line: the first section is the Peking-Kalgan Railway 130 m. with projected extension to Kulun (Urga) and Kiachta. At Chatao (2 miles east of Fengtai) this line connects with the Imperial Railways of North China system to Nankow, a distance of 33 miles. Proposed branches of the Northern Trunk line have been suggested from Kalgan to Jehol (200m.), to Suiyuen (150m.), and to Tatungfu in north Shansi. The Eastern Trunk: This division includes Imperial Railways of North China namely the Peking-Mukden Line by way of Tientsin, Tongku, Shanhaikwan, Chinchowfu, Kowpangtze, Kiuliuho and Hsinmingtun. The principal branches are Peking-Tungchow 15m.; Kowpangtze to Yingkow (Newchwang) 59m.; Chingwantao to Tangho 6m.; Kaopetien on the Peking-Hankow line to Siling 25m. for the western tombs and used exclusively by the Imperial family. The main Peking-Mukden line connects at Mukden with the South Manchurian Railway. The latter runs for 460 miles between Dalny (Dairen) and Changchun, from where a branch of the Chinese Eastern Railway runs northwards for about 130 miles to connect with the main line of 950 miles from the Manchurian border to Vladivostock.

The SMR and CER maintain their own separate stations at Changchun with each railway running a 5 mile track (the gauges being different) between the two termini one of which is called Changchun (SMR) and the other Kwanchengtze (CER). There are also feeder lines for the SMR line from Nankwanling to Port Arthur (29½m.); from Liushutun to Tafangshen 3½ m.; Tashihkiao to Yingkow but not connecting with the Eastern Trunk, the terminus being on the opposite side of the river from the Chinese station; Yentai-Taiking 9¾ m.; Suchiatun-Fushun 37¼ m. and several short spurs to the mines; narrow-gauge (2 ft. 6 in.) from Mukden to Antung 186m. which was leased by the Japanese for 18 years from 1905 and connected with the Korean terminus across the Yalu River. The Western Trunk: this proposed trunk comprises the Chengtingfu to Taiyuanfu line to be joined with the proposed line between Tunkwan and Lanchow in Kansu province and from there westward to Ili in Turkestan. This plan was only on paper and would take several years to materialize. Branches to feed this trunk line would probably commence at Taiyuanfu with a line to Tatung; a line to Tsechow; a line to Loyang; from Lanchow tapping lines converging at Hsianfu, a line from Hsianfu to Chengtu forming a connecting link with the Szechuan Railway and the British and French extensions to the south and from Lanchow lines to Tsingkai (Kokonor), Tibet and Ili. The article next covers the historic beginnings of China's railway system at the Tongshan colliery and explains the railways development into Imperial Railways of North China. This is followed by the Boxer troubles whereafter the foreign allies gave control of the Tientsin to Tonghu section to the Russians who later assumed control of the Tientsin to Yangtsun section. This strained relations between the British and Russians who landed at Shanhaikwan in September (1900) and in October the Russians also landed a force and claimed the line from Newchwang to Tonghu by right of conquest. This was later rescinded and the British, by a January 1901 agreement between the allies, took over the Peking-Shanhaikwan section in February 1901. In March there were further disagreements in Tientsin but this did not prevent the British (military) Railway Administration from repairing the line. Eventually the line was given back to the Chinese Imperial Railway Administration shortly after October 1902. It was during this British (military) control that the 12 mile Peking to Tungchow branch was built at a cost of £30,000. The line to Hsinminting was completed in late 1903, from where a Japanese built narrow gauge line was built to Mukden during the Russo-Japanese war, to be taken over by the Chinese Imperial Railway Administration in 1907. The Boxer troubles were also the reason for the 6 mile Tangho to Chinwangtao branch line being built in order to provide an ice-free port at which supplies fior the allies could be landed. The article next describes in detail the Chinese Eastern Railway, the agreement for which had been signed in 1896. The Russian/Chinese company had started construction in 1897, the same year that the railway city of Harbin was founded. A year later Russia obtained by lease the Liaotung peninsula for a period of 25 years with a concession for the Manchurian Railway Company to build a railway from Harbin to the port of Port Arthur. Much of the work done was destroyed during the Boxer troubles and had to be rebuilt afterwards. By autumn 1901 the entire 5 ft gauge CER was completed including the line south to Port Arthur. During the Russo-Japanese war in 1904 Japan seized the line to a point north of Mukden and by the Portsmouth Treaty of 1905 the Port Arthur-Kwangchengtze line formally passed under Japanese control. During the war the Russian 5 ft. gauge was reduced to the Japanese 3 ft. 6 in. gauge. Japan also built the Kwangchengtze to Antung branch line as well as taking over the Mukden-Antung line as a concession for 18 years. Later with the formation of the

South Manchurian Railway Company the decision was taken to widen the narrow gauge lines to standard gauge. The article next covers the history of the Peking-Hankow Railway. Sheng Kung-pao had been made Director-General of the projected line in 1896 and after a fight between foreign interests to obtain the concession, the Belgian Syndicate won with an agreement being signed in June 1897. A right for China to pay back the loan after 1907 and cancel the agreement was included in the terms. Prior to the Belgian agreement Imp.Railways of North China had already started building the line under Claude Kinder and T.J. Bourne's direction and the line as far south as Paoting had already been completed. When Belgians took over in late 1899 their work was soon disrupted by the Boxers. After these troubles work resumed and the line was completed in 1905 except for the Yellow River bridge. The article next describes the Canton-Hankow railway with all its problems caused mainly by local opposition to foreign involvement. The political wranglings over this line had continued for years with only the 32 mile Canton-Samshui branch line being completed by 1904 and the Pingsiang-Wuchow coal branch in 1905. Next covered is the Canton-Kowloon Railway, one of five concessions granted to the British and Chinese Corporation. The line had been divided into British (Hong Kong) and Chinese sections, although the latter was effectively still under a large degree of control by British engineers. Work was still progressing. Next covered is the Shantung Railway built by the Germans following the lease of Kiaochow in 1898 for 99 years. The Germans had extracted this lease and compensation (including the cost of occupying the territory) for the murder of two German missionaries in 1897. The first of two lines sanctioned, was the Tsingtau and Kiaochow to Tsinanfu line. This line was financed and operated by the Schantung Eisenbahn Gesellschaft and there is a coal branch to Poshan 34 miles in length. The article then continues with a history and description of French railways in China, notably the Yunnan Railway to connect Tonking with Yunnanfu with completion expected about 1910. The Shanghai-Nanking Railway is next described with this line to form part of the proposed Yangtze Valley system. This concession had been granted to the British and Chinese Corporation and the engineer-in-chief was Collinson. The line had been fully opened in March 1908. Also described is the construction of the Tientsin-Pukow railway, the Anglo-German contracts having just been signed with China. Next described is the Peking Syndicate Railway built to exploit mineral wealth in Shansi. The line from Taokou to Pasan had been completed in 1905, a distance of 92 miles. The syndicate had since run into so many obstructions from provincial authorities that they decided to sell the line during 1907 with an agreement being made for this in Januray 1908. The article goes on to describe the Peking-Kalgan line, constructed by (Taotai) Jeme Tien-yow. The article concludes by printing in full the text of various railway loan agreements. These include the Tientsin-Pukow Railway Loan Agreement; The Shanghai-Hangchow-Ningpo Loan Agreement; Preliminary Agreement for the Peking-Newchwang Railway Loan; Definitive Agreement for the Peking-Newchwang Railway Loan; Agreement between the Chinese Government and Russo-Chinese Bank for the Construction and Management of the Chinese Eastern Railway; Agreement for the Construction of the Taokow to Chinghua Railway; Working Agreement between the Chinese Government and the Pekin Syndicate; Final Agreement for the Shanghai-Nanking Railway Loan; Tientsin to Chinkiang (Now Nanking) Railway Preliminary Agreement; Contract For Building a Railway from Kaifengfu to Honanfu; Agreement Between China and Germany in Regard to the Railway and Mining Concession in Shantung; Agreement for a Loan for the Construction of a Railway from Canton City to the Boundary of the Kowloon

Leased Territory Under British Control. The article contains 75 photographs of various sizes and quality, 15 sketch maps and 2 other illustrations.

October 1908

Railways in China Short editorial about how the previous month's edition with a comprehensive review of China's railway development had been well-received internationally. The writer opines that capital has "no nationality" and will go anywhere if returns are competitive but the future of further investments in China will depend upon the country protecting investors.

Nanking City Railway, the line opened to traffic in August.

Shantung Railway, revenue report

Peking and Mukden Traffic, traffic between these two points opened 1st September.

Formosian Railway Hotel, the railway hotel at Taikohu was almost completed.

Mukden Railway Depot, the new building constructed by Imp. Railways of North China was opened in September.

Peking-Kalgan Construction, floods had destroyed much of the track near Nankou but this had been repaired.

Tehchow Arsenal Branch, a petition had been presented calling for a branch to connect with the Tientsin-Pukow line.

Kiachow-Tsinanfu Railway, the German government had agreed to sell back the line to the Chinese government for 15 million Taels.

Railway Bridges for Tientsin-Pukow Line, 8 large bridges had been ordered from the Hanyang Iron & Steel Works.

Canton-Hankow Railway, the road bed was to be changed because of the effect of floods.

Bridge Work for the Tientsin-Pukow Line, construction contracts had been awarded in the Northern Division.

Antung-Mukden Railway, Liaoyang might not be included in the route.

Japanese Enterprise in Manchuria, profit on the railway section controlled by the Japanese, south of Harbin, had exceeded ¥4 million p.a.

Northern Manchurian Railway, Peking had authorized the construction of the 240 mile Tsitsihar to Aigun line.

Trans-Formosan Railway, the ceremony for the opening of the line was to be held at Taichu in October and would be attended by a Japanese prince.

Peking-Hankow Railway, flood damage had been repaired and traffic resumed on 20th August.

Yellow River Railway Bridge, the river was to be spanned at Lokow for the Tientsin-Pukow line.

Hsinmintun Fengtien Railway, redemption of this line had been recommended to the Throne.

Tientsin Branch Station, a station for a branch connecting with the Tientsin-Pukow line was being discussed.

Amoy-Chiang Chu Railway, it was expected to extend this line to connect with the Peking-Hankow line.

Changchun-Kirin Railway, local Chinese capitalists were attempting to secure control of the line.

Military Railway Branches, Peking was considering branches from main lines to connect with naval stations and military depots.

Canton-Hankow Railway, the construction work from Wuchang for 148 miles was to be under G.Moore who is also engineer-in-chief of the Hankow Waterworks.

Kowloon-Canton Railway, there was a dispute over the appointment of an adviser.

Russo-Japanese Railway Conference, there was to be a conference to discuss a junction between the SMR and CER and also Chinese lines.
Canton-Macao Railway, the Chinese director was petitioning for the contract with the Portugese company to be cancelled because of delays.
Canton-Hankow Loan, negotiations were in hand for a loan for this line.
Yunnan Railway, the concessionaire company that had constrcted 92 kilometers of line had collapsed.
Tai-Tsao Railway, a projected coal line in south Shantung to Yihsien.
Hangchow-Kashing Railway, a trial run was conducted on the Linping-Siashih section in August.
Pakhoi-Nanning Railway, the survey of this line had been ordered.
Tientsin-Pukow Construction, the German or Northern division of this line was to be divided into 4 sections.
Locomotives for Peking-Kalgan Line, North British Loco. Co. of Glasgow had shipped 3 heavy articulated compound engines to the railway. Includes principal specifications.

November 1908
New Locomotive for Peking-Hankow Railway, an article describing the new articulated 0-6-2:2-6-0 tank locomotive built by Societe Anonyme de Forges,Usines et Fonderies of Haine St Pierre, Belgium. The article gives principal dimensions and other specifications and includes a photograph.
Personnel - C.W Kinder, a report that Kinder had been appointed Special Representative of the Board of Posts and Comminications to confer with the South Manchuria Railway to discuss questions arsing from the Japanese-China railway agreement.
Peking-Kalgan Railway, line to be completed year end.
Mukden Junction Open, the junction of Imp. Railways of North China with the SMR was completed 1st October.
Chinese Redemption Loan, a £5 million loan floated in London and Paris.
South Manchurian Revenue, SMR receipts for August.
Lokow Steel Bridge, the Tientsin-Pukow Railway bridge over the Yellow River to cost 2 million Taels.
Kashing Railway Company, the earthworks between Kashing and Hangchow were almost complete.
Kirin-Changchun Railway, the northern section would cost 3½ million Taels.
Yihsien-Zechow Branch, a petition to have a coal branch line from the mines in Shantung connecting with the Tiestsin-Pukow Railway.
New Chinese Enterprise, a company had been formed in Nanking to secure the Anhui section of the Tientsin-Pukow Railway.
Szechuan-Hankow Railway, Hupeh gentry were urging the raising of a loan for this line.
Indo-Chinese Railways, the Laogai-Mengtze section of the Yunnan line was to open end of 1909.
Canton Hankow Construction, the line to Wongshek was expected to open year-end.
Peking-Hankow Redemption Loan, efforts for raising a local loan to pay for redemption.
Control of Chinese Railways, Imperial sanction was being sought for central control.
Chefoo-WeiHsien Railway, promoters of the line were trying to get authorization.
Pukow-Hsinyang Railway, negotiations for a loan agreement were in hand.
Shantung Railway Company, report on half year receipts.
Canton-Hankow Railway, announcement that 107 li were in operation.

Chinese Materials for the Tientsin-Pukow Line, Cement for the northern section construction was to be supplied by Chihsin Cement Factory in Tangshan and steel would also come from Chinese sources.

December 1908

The Trans-Formosan Railway, article reporting the official opening by Japanese Prince Kanin of the 247 mile railway on 24th October. The railway had started with a 12 mile section, opened in 1889, which had been built by Governor Ting, who had been advocating railways in China since the 1870's. When the Japanese took control of Formosa only 62 miles had been completed by the Ting's successor Governor Lee Ming Chuan. Lee had resigned in 1891 and after that date the maintenance of the line had been neglected. When the Japanese assumed control in 1895 they had to reconstruct the existing part before extending it. In addition to the main line there were two branches: Taipeh-Tansai (14 miles), Takao-Kyukyokudo (10½ miles) and also a number of privately operated narrow gauge sugar cane lines connecting with the main line.

Resignation of Mr. Kinder, Dr. Morrison of the "TIMES" reported the resignation of Kinder, Chief Engineer of Chinese Northern Railways. Kinder had been associated with railways in China for 30 years since the first survey and was regarded as the founder of railway construction in China. Kinder had stated that he was resigning because of his age (56) and a desire to return to England. It was known, however, that his job had become intolerable because of interference from the Ministry of Communications. He had been deprived of any real authority, objectionable contracts had been entered into without his knowledge and trustworthy English engineers had been dismissed without reference to him.

Branch Line to Macao, a preliminary survey was under way.

Singyangchow-Pukow Railway, Chinese Director-General appointed.

Tientsin-Pukow Redemption, the people of Chihli were to increase salt tax to pay for the redemption of this railway.

South Manchurian Railway, October returns had increased.

Lhassa-Chumbi Railway, Peking had authorized the Dalai Lama of Tibet to arrange a loan for this railway.

Laokai-Yunnan Line, the chasm at 94 km post had been bridged and the line was expected to reach Mengtze by July 1909.

Peking-Kalgan Extensions, extensions would begin as soon as the main line was completed next spring.

Chinese Railway Bureaux, bureaux were to be established in each province with railways operating.

Narrow Gauge for Central Shantung, merchants were to construct a short narrow gauge line connecting Lokou with Tsinanfu.

Kwang-Cheng-Tze Kiran Railway, two routes had been submitted for consideration.

Yunnan-Szechuan Railway, the Viceroy had ordered the money to be fully raised before commencing construction.

Imperial Interest in Railway Construction, Peking was urging provincial support for the construction of the Canton-Hankow and Chengtu-Hankow lines. Continual dissension among Chinese merchants had been responsible for the delays with line.

January 1909

Street Railways in China, a report about tramways in Shanghai. This collection does not cover tramways.

British and Chinese Corporation, an article detailing the proceedings of the 10th Annual General Meeting in London. The report touches on the various railway loans and concessions for railways in China.
Canton-Hankow Construction, 33 miles of the line was now open to traffic.
International Railway Conference, Peking had appointed 5 commissioners to attend the Railway Congress in Belgium in 1910.
Hangchow-Ningpo Railway, the survey had been under way for some time and construction would not be delayed.
Sianfu-Tungkwan Railway, Shensi capitalists had subscribed 600,000 Taels for the construction.
Antung-Mukden Line Recommendation, arrangements for reconstruction had been made and the work would take three years beginning in spring.
Canton-Hankow Railway, the Viceroy of Canton had recommended the negotiation of a foreign loan because the project was too big for native capital.
Chefoo-Wehsien Railway, work was planned to begin in spring on the 50 mile line.
Canton-Kowloon Railway, the Chinese were being pushed to complete their section.
Liau-Ho Bridge Completed, the bridge near Hsinmintun, located just below the old wooden Japanese narrow gauge bridge, had been completed and was open to traffic.
Chinese Railway Forestry, soil investigation was to be conducted with a view to planting trees to provide sleepers.
Another Mongolian Project, Russia was proposing another line connecting Maimaicheng with the Trans-Siberian Railway.
Peking-Kalgan Extension, upon completion of this line there was prospect of early extension.
Tientsin-Pukow Construction, construction in the vicinity of Tsangchow was progressing rapidly.
Kilin-Changchun Convention, the engineering and financial control of the proposed line was to be in Japanese hands.
Chinese National Railway Association, the association, headquartered in Shanghai, had been formed to introduce a uniform system of railway administration in China.

February 1909

The Fakumen Railway Dispute, a 3½ page article concerning a serious dispute between Japan and China concerning the latters intention of constructing an extension of the Imperial Railways of North China line north from Hsinmunfu through Mukden to Fakumen on the border of Mongolia and thence on into Mongolia to Tsitsihar the capital of Heilungkiang province. Japan considered this proposal to be a threat to the SMR and submitted that in secret clauses in a 1905 agreement between the two nations, China had undertaken not to build any railway parallel to the SMR or any branch line which might be detrimental to the interests of the SMR. This clause could only be negated by China taking back the SMR from Japanese control. The matter had now got very heated because China had, unknown to Japan, already concluded loan and construction agreements for the line with the British and Chinese Corporation and Paulings Ltd of London respectively. The article continues with detailed representations made by the Newchwang Chamber of Commerce on behalf of foreign interests, who were siding with China in this dispute.

Mukden, -description of improvements being made in the city including to the Imp. Railways of North China and SMR railways stations. The two stations had a 2½ mile wagon line connecting them in spite of earlier opposition from the Japanese to this connection. 1 photo of Chow Chang-Ling who at one time acted as Director of Imp. Railways of North China.
Railway Communication, short article describing the extent of development of the SMR and Imp.Railways of North China within Manchuria and how these railways would foster trade and fair competition in an area where resources were increasing.
Nanking-Pukow Railway Ferry, it was proposed to have a railway ferry between the termini of the Shanghai-Nanking and Tientsin-Pukow railways.
Tientsin-Pukow Construction, a ceremony to turn the first sod on the south section was held on 2nd January.
Canton-Hankow Loan, negotiations for a loan were ongoing.
South Manchurian Railway Enterprise, the SMR were attracting transcontinental traffic by offering free wharfage and low rates at Dalny.
Locomotives for the Peking-Kalgan Line, a Mallet compound engine for use on the heavy grades had been delivered in January.
Hankow-Szechuan Railway, a High Commissioner had been appointed for this line.
Kowloon-Canton Railway, the Kowloon tunnel would be completed in April.
South China Railway Projects, construction of the Canton-Macao & Fatshan-Kaochou lines were being contemplated.
Kaifeng-Hsianfu Railway Opened, the railway was opened to traffic as far as Honanfu on 26 December making in all 226 kilometers of line opened.
Peking-Hankow Transfer, on 1st January the Chinese Government took over control of the railway from the Belgian Syndicate, the redemption having been arranged.
Chinese National Railway Association, a number of regulations had been issued.

March 1909,
Kowloon-Canton Railway, Mr. M. Stewart, Chairman of the China Association, at a meeting in Hong Kong criticised the slow progress of the Chinese section of the Canton-Kowloon line and other shortsightedness by Chinese railway directors of the Canton-Hankow line.
China's Northern Railway, an article about the Peking-Kalgan Railway starts with reporting that the Nankau to Huailai section had been opened on 6 February. The article describes the working of the steep Nankau pass with Mallet locomotives which gave full satisfaction. Extensions of the line were already being planned but shortage of capital was a problem in China.
Antung-Mukden Line, the survey was still in progress.
New South Manchurian Railway Headquarters, the company had moved into its new HQ at Dalny,
Kuachou-Luchoufu Railway, this was tobe the first section constructed of the Chingkiang-Luchou line.
South Manchurian Railway, receipts for the month of January.
The Changchun Junction, the new arrangement for the connection of the SMR and CER was in effect and the temporary station at Kwangchengtzu abolished.
Chefoo-Weihsien Railway, the company had purchased rails from Japan.
Chinese Eastern Railway, an agreement between China & Russia for a light railway from Hanhin to Hsinfu and Pai Chuen.
Kashing Railway, the railbed between Hangchow and Kashing had been completed.

Tientsin Government Railway Shops, the government had decided to erect large railway shops at Tientsin.
Proposed Kirin-Kailung, Cheng-Antung Railway, Kirin capitalists planned to construct this line.
Tientsin-Pukow Construction, work on the northern end was progressing rapidly.
Shantung Coal Railway, the material for the Taierhe chwang-Yihsien railway had been received and the line was expected to be complete in December.
Yunnan Railway Loan, the French government had authorized a further loan for the line.

April 1909

The South Manchurian Railway- An Appreciation, a 4½ page article by the Far Eastern Review's own correspondent. The article is an essay discussing the various common criticisms of the railway. After Japan had initially taken over the line from the Russians the railway had faced tremendous problems. The line had been virtually destroyed by the Russians in retreat and Japan had to improvise using Japanese narrow gauge equipment borrowed from Japan. During this period the railway had attracted much criticism about its operation but the writer dismisses the critics and sides with Japan stating that they were doing their best under difficult circumstances. Since the line had been widened to standard gauge and re-equipped the whole operation was superb. The article also discusses the fate of the port of Newchwang, which he considered had now seen its prime. This was because Dalny, an ice-free port, could better serve the needs of Manchurian exporters than Newchwang which was ice-bound for 4 months each year. The article continues with a description of the author's trip on the railway, including his experiences of the "abominable" American style Pullman sleeper cars in which passengers had to suffer the indignity (" an acquired vice") of sleeping in common corridor bunks instead of in European style private compartments. Overall the article describes his very favourable impression of the railway and dismisses the Treaty Port critics as "growlers looking for trouble". A full page map of the SMR and its connections is included.
History of the South Manchuria Railway, this 5 page article details the company's powers and intentions as outlined in a shareholders meeting. The article describes the company's equipment and assets including some 781 buildings, operations, principal officials, financial accounts, timetables for express trains including connecting steamer services from Dairen to Shanghai, fares, connections with the Trans-Siberian Railway, time and money required for a journey via SMR to Europe (Shanghai to Moscow about 15 days) compared with the Imp. Railways of North China route (about 10 days). From St Petersburg to London would take another 53 hours. 12 photographs of carriages, locomotives and buildings.
The Antung Mukden Railway, a 2 page article describing the route of the railway which had begun as a light military railway hastily constructed by the Japanese to support the advance of the army into Manchuria after the Russo-Japanese war. Since then the 2ft. 6 in. line had been rebuilt, the 33 mile section taking only 1½ months. The locomotives had been supplied by Baldwin. The line was expected to be later upgraded to standard gauge. 4 photographs.
Shantung Coal Railway, A short report on the difficulties faced by this Chinese-built coal line called the Tsai-tsao Railway.
Contracting News- Imperial Tienstin-Pukow Railway. Details of tenders invited for supply of various materials.

Kashing Railway, work was progressing smoothly and trains were running into Kashing.
Nanking-Wuhu Line, arrangements had been completed for the construction of this line.
Railway Workshops at Shahokou, the site for the works had been chosen.
Yunnan Railway Construction, construction had reached Mengtze.
Antung-Mukden Railway, the final survey for shortening the line and upgrading to standard gauge was under way.
Canton-Hankow Railway, the work had reached North River and the line was being operated to Yuntam about 50 miles from Canton.
Pingshiang Railway Extension, this would be built by the Canton-Hankow Railway and not by the mines.
Chinese Eastern Railway, the Russians were reported to be conducting negotiations with the Chinese for sale of the railway rights.
Tsinanfu-Lokow Line, a temporary line to be operated.
New Chinese Railway College, a railway college had been recommended for Tientsin,
New Shensi Railway, officials were advocating lines from Hsian to Tungkwan and Hsian to Langchow.
Yentai Branch Line, the line from Yentai to the mines was to be widened to standard gauge.
Northern and Western Chinese Railways, the extensions to the Peking-Kalgan line were under consideration in Peking.
Yalu Railway Bridge, construction was to be begin on this bridge which would lead to through traffic from Fusan in Korea to Mukden.
Szechuan-Tibet Railway, British interests wished to build this line with a view to Indian connections but Peking did not favour it.
Chinese Railway Returns, financial reports for the year 1908.
Chefoo-Weihsien Railway, the route was still being decided upon.

May 1909

Editorial discussions on the government disagreements concerning the Chinese Eastern Railway & associated industries with a copy of original Agreement Between the Chinese Government and the Russo-Chinese Bank for the Construction and Management of the Chinese Eastern railway, this article reproduces the 1896 agreement between China and Russia to create the CER Company. The agreement was signed on 8th September 1896 and provided terms for China taking over the line 36 years later. Multiple small photographs, some of railway scenes and officials.
Fushun Coal Mines. Five-page description of the Fushun Coal mines, owned by the South manchura Railway Company. Multiple photographs with some of railway scenes.
Imperial Tienstsin-Pukow Railway tender invitation for supply of cement.
Yunnan Railway, prospects for completing the line in 1910.
Peking-Hankow Railway, net proceeds for the first quarter.
Macao-Canton Railway, prospects for the line being constructed brighter.
Mukden's New Station, the work on the new SMR station was being pushed vigorously.
Railway Shade Trees, the SMR had secured 60,000 trees for providing shade at stations.
Shanghai-Hangchow-Ningpo Railway, the section between Sungking and Fongking was opened 14th April which completed the Kiangsu section.
Canton-Kowloon, the foundation stone for the Canton station was laid on 8th April by Sir Frederick Lugard.
Hong Kong Railway Construction Account, accounts for the year 1908.

South Manchurian Railway Traffic Report, freight traffic figures for six months.
Trans-Mongolian Line, Peking had proposed the Kalgan-Urga line should go to Maimaicheng and make connection with the Siberian Railway at Kiakhta.
Fushun Coal Full page advert for Fushun "best steaming" Coal supplied by the South Manchuria Railway's Fushun mine. 1 photo of mine and railway.
South Manchuria Railway Company, full page advert for this railway. 5 small photographs

while the United States Smelting Company has only three of its six furnaces working. The reason of this is to be looked for in the lower prices of ores which have caused a marked reduction in the supplies of lead ore. To mention only one instance, there is the Coeur d'Alène district, one of the chief producers of lead ore, where the ore production amounted to no more than 50 per cent. of its normal figure.

The production of Mexico receded in 1906 from 75,000 tons to 54,000 tons—a loss of 21,000 tons, or about 24 per cent.; but in 1907 it rose again by 18,000 to 72,000 tons. How far the currency law of May 1, 1906—in virtue of which Mexico adopted the gold currency and gave the silver dollar a fixed value—has influenced the lead production, which is generally very intimately connected with the silver production, cannot yet be finally determined on the basis of the production of last year. An accurate judgment in this respect will only be possible after we have passed through a prolonged period of lower silver prices than the last three years have witnessed. It is probable that a longer period of low silver prices will unfavourably influence the lead and the silver production of Mexico, for owing to the fact that wages, salaries, and other expenses have to be liquidated in gold currency, the cost of production will not be affected by the fluctuations in the value of silver, while the prices realised for silver in bullion and ores will recede in accordance and in the same proportion with the receding money value of silver.

PRODUCTION OF LEAD IN METRIC TONNES

	1904.	1905	1906.	1907.
Spain	177,800	180,700	180,900	185,800
Germany	137,600	152,600	150,700	*140,000
France	18,800	24,100	25,600	*23,000
Great Britain	24,400	23,800	21,400	*20,000
Belgium	23,500	22,900	22,200	25,800
Italy	23,500	19,100	21,300	22,900
Austria-Hungary	13 100	13,500	16,400	15,400
Greece	15,200	13,700	12,100	13,800
Sweden	600	600	800	*700
Russia	300	300	*300	*100
Turkey (Asiatic)	10,700	10,400	9,600	10,400
U. S. A.	296,000	312,500	334,800	340,700
Mexico	83,900	*75,000	*54,000	*72,000
Canada	17,200	25,700	23,800	*21,000
Japan	1,800	2,300	3,500	*3,500
Australia	119,400	107,000	93,000	97,000
Other countries	800	200	200	*200
Total	964,100	981,900	970,600	992,800
Average price of English lead in London.	£11 19 8	£13 14 5	£17 7 0	£19 1 10

ZINC

The world's production of zinc in 1907 shows a further increase, which amounts to 36,400 tons, or about 5 per cent. The largest share in this increase falls to the part of the United States of America.

Germany's zinc production shows, with 208,700 tons, an increase of about 3,000 tons, or 1½ per cent. To this total Silesia contributed 138,400 tonnes, and Rhineland and Westphalia 70,300 tonnes. For the first time Germany had to be content with second place among the world's zinc producers, her output having been exceeded by America. Germany's zinc consumption of 174,900 tonnes was less by 4,400 tonnes, or about 2½ per cent. than in the preceding year. Her imports of spelter, amounting to 28,500 tonnes, receded by 8,500 tonnes, against those of the previous year, which amounted to 37,000 tonnes, but they still exceed the imports for 1905 by about 1,700 tonnes German exports of zinc were not subject to any material fluctuations during the last three years; for 1907 the slight decrease of 1,200 tonnes to 62,200 tonnes has taken place. Germany's production of zinc ores during 1907 has not yet been definitely ascertained. Imports increased by about 5,700 tonnes to 184,700 tonnes, while at the same time the exports receded from 42,600 tonnes to 34,900 tonnes. The excess of zinc exports in finished goods amounted in 1907 to 35,800 tonnes as against 30,500 tonnes for the preceding year. The increase is, therefore, 5,300 tonnes, or about 16.5 per cent.

* Provisional figures.

The United States of America, with an output of 226,860 tonnes, have advanced to the foremost position among all zinc producers. The increase over the preceding year amounted to 24,700 tonnes, or about 12 per cent., the greatest portion of which has been contributed by Illinois, the Eastern and Southern States, and Kansas. The consumption in the United States, however, has probably not exceeded that of the previous year, when 200,000 tonnes were worked up locally. We arrive at this conclusion by taking account of the existence of stocks, which, according to a communication by the "Mining & Engineering Journal," are likely to have amounted at the end of the year to 22,000 to 30,000 tonnes. In view of the heavy decline of the consumption in the United States during the closing months of 1907, combined with the disproportion which prevailed at one time between the prices of zinc ores and spelter, several zinc-producing concerns have decided upon partly or entirely closing down their works, and, as a consequence of this measure, zinc ore producers, too, have felt induced during the last months of 1907 materially to restrict their output.

An event of far-reaching importance is the formation of the Association of German Zinc Smelters. In the first instance, the association was planned for a period of three years, the expectation of the founders being that they would succeed in inducing the Belgian zinc works—which are naturally in a position to exercise a strong influence upon the German as well as upon the English market—to arrive at a common agreement concerning the determination and regulation of the production of the several works. If such an agreement should be concluded, the output of the existing zinc works, and those which are now in course of erection, would be regulated for the next three years.

Production of Zinc in Metric Tonnes.

	1904.	1905.	1906.	1907.
Rhenish Westphalia	65,888	67,243	68,697	70,268
Silesia	125,672	129,941	136,326	138,439
Belgium	139,962	145,592	152,461	154,492
Holland	13,099	13,767	14,650	14,990
Great Britain ..	46,216	50,927	52,587	55,595
France and Spain ..	49,082	50,369	53,786	55,733
Austria and Italy ..	9,248	9,357	10,780	11,359
Russia	10,606	7,642	9,610	9,738
Europe	459,293	471,800	498.897	510,614
U. S. A.	165,850	183,245	202,092	226,838
Australia	290	650	1,026	996
Total	625,400	658,700	702.000	738,400
Average price for the year	£22 11 10	£25 7 7	£27 1 5	£23 16 9

STEEL COAL CARS FOR PEKING-KALGAN R. R.

The fifty 20-ton-all-steel coal cars recently delivered by the Leeds Forge Company to the Imperial Railways of North China for the Peking-Kalgan line are described as follows:

	Feet.	*Inches*
Length over buffers	24	3
,, ,, headstocks	21	6
,, inside	21	3
Width inside	7	8½
Height from rail level to top of side	8	8
Heights from floor level to top of side	4	9⅞
Cubic capacity	810	
Wheel diameter	2	9
Wheel base	12	
Journals		10+5

On each side of these cars there are two door openings, constructed of the Leeds Forge Company's patent corrugated pressed steel, each door opening being 4 feet 2 inches in width and 2 feet 3½ inches in height. The wagon sides are constructed of 7lb. steel plates. The cars are fitted with a side lever brake operating one block to each pair of wheels, whilst central buffers and Janneys' couplers are also provided.

THE WAKAMATSU FOUNDRY

Mr. Nakamura, Superintendent of the Wakamatsu Foundry, in replying to questions addressed to him during the session of the Agricultural and Commercial section of the Budget Committee did not confirm the optimistic statements which were recently circulated about the state of that enterprise. He said that in no country had such a work been brought into a really successful condition within a shorter period than ten years. The smelting furnaces at Wakamatsu have been in operation since 1901 and were fairly successful, but most of the other departments were opened only recently, and it will take two or three years longer to get them into a thoroughly satisfactory condition. One great difficulty under which this Foundry is is the cost of coal, which is so expensive as to interfere seriously with the competitive ability of the works. At present about 130,000 tons of iron are turned out annually, but this amount is far from meeting the demand in Japan, and on the other hand the Foundry in existing circumstances can not produce iron as cheaply as it may be bought from foreign countries. The only hope, so far as he could see, lay in tariff revision, which would be possible in 1911.

Mr. Kanematsu inquired whether in such circumstances it would not be better to rely on imported iron for ship-building purposes; also whether there was no prospect of getting cheap fuel, and finally whether no hope is entertained of being able to supply the need of the Japanese market in the course of the next ten or fifteen years without relying on State aid or tariff revision. Mr. Nakamura replied that the price of coal had risen enormously during the past few years and that unless the Foundry could get its fuel at about 4 *yen* a ton or less, its chances of turning out cheap iron were small. There was a good hope of obtaining satisfactory ore in Japan but at present the Foundry relied entirely upon the supply coming from the Taiya mine in Chin. As to the import duty which it would be necessary to impose on the occasion of tariff revision, he could not speak with absolute accuracy, but he presumed that something like the rates charged in Germany and the United States would be levied. The delegate refused to pronounce any opinion in his official capacity as to the advantage or disadvantage of converting the Foundry into an enterprise carried on jointly by the Government and a private company, or converting it altogether into a private concern. As an individual, however, he did not hesitate to say that its prospects as a purely State enterprise were not bright.—*China Mail.*

KANABOI MINING COMPANY'S PLANT

A description of this company's extensive plant in the Kanaboi valley is given in a recent number of the *Malay Mail* as the result of an excursion to the mine under the direction of Mr. Richardson, the managing director.

The Kanaboi valley, which extends from Bukit Hitam to the Pahang watershed, has long been under the eye of the prospector and it is the development of the deposits of tin ore, which contains a percentage of alluvial gold, that this company has in view.

The works are connected with the Konkoi River a distance of two miles by a light railway operated by the company. The company has built a masonry dam across the Konkoi river above the Falls and from there a strong force of water is led through iron pipes down to its Kanaboi Concession which consists mainly of a large extent of flat land being worked by hydraulic monitors, the tailings difficulty being overcome by the use of elevators, the main idea being quick and efficient working at a moderate cost. The mining of tin is the chief object in view, but fair quantities of alluvial gold are found with the tin ore and are separated by a special process.

The elevator sucked up the stones and gravel from the bottom of the mine into the tail race. The company, so far, has done little more than development work and has been hindered a good deal by heavy rains and floods, but, with the change of season now, they should be able to go ahead in good earnest. The Kanaboi river will also be worked by a dredger, which has been built and will be started soon.

THE NEW SHANTUNG RAILWAY

A correspondent of the *Celestial Empire* gives an interesting and comprehensive review of the progress in railway construction in Shantung and the industries affected thereby in the section traversed. The correspondent writes:

"Known as the Tai-tsao Railway this line, something over 80 li in length, is projected to run from the coal mines 20 li north of Yihsien down past that City to Taierchwang, the leading port of South Shantung on the Grand Canal.

"TSAO-CHWANG.—Is an ordinary Chinese village of a couple of hundred families remarkable for nothing else than that it gives its name to the mines in the near vicinity. The town of note in the vicinity is Ch'i tsun. This is a place of some 800 or 900 families, famous in all the region round about for its potteries. The great Kang water jars, used also for holding grain, some of them considerably larger than a flour barrel, are made here, while bowls and small jars are made by myriads. There are 13 kilns and each one of them can turn out between $600 and $700.00 Mex. worth of products per month. Nearly all, of indeed not all, the kilns are controlled by one very wealthy family of which one of the members is a Hanlin and a Censor, Tsui by name. This town shares with Yen Hsien, in Central Shantung, the pottery trade of this section.

"YIHSIEN.—Is a trim little city attractively located at the opening of a valley. It was formerly spelled Ihsien and so appears in the Bond advertisement of the Tientsin-Pukou railway where it is mentioned as the point where the German section of the railway connects with the British section. The P. O. has changed the spelling to avoid confusing the place with an Ihsien in Nganhwei. The city is prosperous but is not higher than a third rate district city as regards size and trade.

"TAIERCHWANG.—This is a place of about 600 families. It has a brick wall surrounding it and one very fair business street. It almost supports a telegraph office and has also a C. I. P. O. with daily mail from the South. It is eight days stages by boat from Chinkiang. that is something over 700 li. Here is an office for the collection of revenue from boats, here is another office established by the Board of Commerce, Industry and Agriculture to see that the other office does not unduly oppress the boatmen and traders. The following are some of the principal distances from Taierchwang:

S. E.	via	Canal	to	Yaowan	110 li
"	"	"	"	Hsu Chien	180 "
"	"	"	"	Tsingkiangpu	360 "
"	"	"	"	Chinkiang	720 "
N.W.	"	"	"	Hawchwang	83 "
"	"	"	"	Hsia Chen	140 "
"	"	"	"	Tsiningchou	360 "
N.E.	"	land	"	Ichowfu	180 "
S.W.	"	land	"	Hsuchowfu	110 "

"THE MINES.—It is plain from the above table that the outlook for the mines is very favonrable. Tsining is the second largest city of Shantung, somewhat decadent now owing to the diversion of the grain transit from the Canal to the ocean but still a very large and by no means dead place. Ichowfu and Hsu Chowfu are flourishing cities of 60,000 or 80,000 population and centres of populous regions. Su Chien is a prosperous district city situated on the old bed of the Yellow River from which it draws sand for its glass-works. These are under the care of several Englishmen and use large quantities of coke. The road from the mines to Taierchwang is traversed by one continuous stream of barrows wheeling coke. I counted 50 in a couple of hours. Each barrow holds 600 catties and upward and the poor fellows receive about 500 small cash per day for their toil. Most of this coke, it is said, goes to the glass-works. Tsingkiangpu is one of the big towns of north Kiangsu.

"THE OUTPUT.—At the mines is at present two hundred tons a day. The coal is only from two to three hundred feet deep and in places the seam is over 20 ft. thick. The coal is of excellent quality, bearing the reputation of being the most valuable deposit in the province. It is very largely used by the Chinese in the general vicinity for domestic purposes and has been of great use to them this present year on account of the high price of Kao-liang stalks and other vegetable fuel so extensively used in North China. There are thirteen shafts or rather holes now on the plot but at present only three are working. The coal is hoisted by a steam engine in rope baskets containing about 120 catties. The men go down for a 24 hours' shift and are paid by the basket, 100 small cash per basket. They can if good workmen earn half a dollar for their long hard turn of 24 hours. Two of the thirteen holes are used for taking out the water which is brought up in big leather bags, by a steam engine.

"The coal is quite soft and is remarkable because of its freedom from lumps. About a hundred coke ovens are in close proximity to the mines.

"The premises are quite extensive probably three li long and two li wide. The concession granted by the Imperial Government to the company embraces a territory ten li square. The leading spirit of the company is Hon. Chang Lien-fen at present Salt Commissioner of Shantung. So far as now known coal is found within a region 70 li long by 40 li wide. Another Company headed by a rich Chinese of the vicinity, Mr. Liang, has another, but much less valuable concession near by. The plan is to introduce foreign machinery at an early date. A shaft will also be sunk 40 li N. W. of Tsao-Chwang within 10 or 20 li of the proposed line of the Tientsin Pu-kou railway. There is a great future for the mines as the railway will make such large use of their coal, no other mines being so conveniently within reach of it.

"It is almost a certainty that in the near future a railway will be built connecting the mines with the recently opened port of Haichow, in north-east Kiangsu. This will give the mines an outlet to the ocean. The real port is Ching Kou not Haichow. The line will be easy of construction, running a hundred miles through the fertile and populous Ichow-fu plain and touching that city.

"THE TAI-TSAO RAILWAY.—Is to be completed before the middle of next year. The work on 90 li of earthworks is well under way and will be largely completed before the rainy season of this year. The summer rains will greatly solidify the embankments and in September the laying of rails will commence. The point at which delay is most likely to occur is at the 60 metre bridge crossing a small river at Yihsien. There are only three other bridges and they altogether do not exceed 70 metres in length. The grade is extremely easy, and there are two cuts and these very light ones on the entire line. In addition to the two termini and Yihsien, there will be but one other station, that at Ni-kou, a scattered village of some three hundred families half-way between Yihsien and Taierchwang. The material, that is bridges, rolling stock, rails, etc., comes through the firms of Arnhold, Karberg and Co., and Carlowitz and Co. It is said that the present concessionaire had to make a stiff fight at Peking to keep his prize from following the path of so much other mineral wealth of Shangtung in passing under German control and that the matter was compromised by the arrangement that in the development of the mines German machinery should be used. It is generally supposed that there is also some German capital invested therein.

TAPPING RUBBER TREES ON WILSON'S ESTATE, FEDERATED MALAY STATES

"The railway however is overwhelmingly capitalized by the Chinese, nearly all Shantung high officials being interested therein, Szechwan and Chekiang also being largely represented as well as capitalists in Shanghai and Tientsin.

"The Railway will be almost entirely a coal road. Eight cars and 3 locomotives have been ordered for this traffic, machine shops will be erected at Taierchwang and possibly some passenger cars built there. Limestone is abundant in the nearby hills and already sixty trucks and 10 li of light railway are piling in the necessary stone.

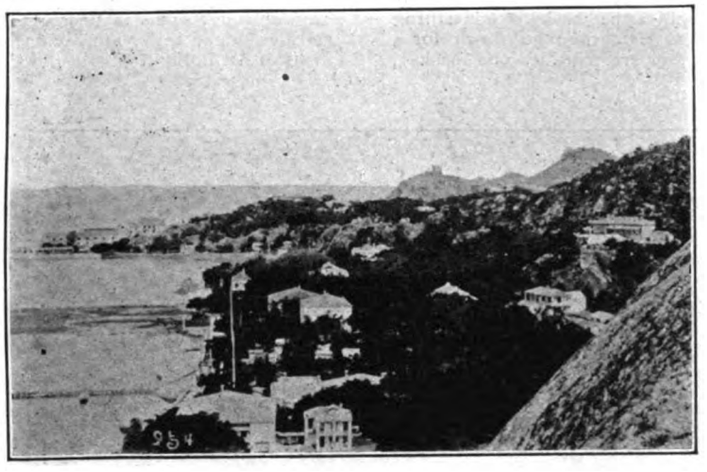
"The coal yard and wharf at Taierchwang wil be a large affair. About 45 English acres have been purchased in a bend of the Grand Canal which bounds it thus on two sides. Along these two sides 700 ft. of wharfage stone masonry are being constructed while on the two remaining sides a circumvallating moat has been constructed which will admit boats from the Canal. The whole plot has been elevated 5 ft. above the adjacent territory.

"THE CANAL.—Is sadly in need of dredging. The German Mission of South Shantung has just bought a launch drawing one foot of water which will make the trip from Chinkiang to Tsining in four days. Just now, however, only boats drawing half a foot can navigate certain sections of the upper part of this route."

THE PORT OF SWATOW.

Swatow, in Kwangtung, has always had a great stand by in its export of sugar, but the cultivation of the cane has had a considerable check owing to cheaper sugar from Java imported into China direct, or after treatment at the three refineries in Hongkong. Cheap Javanese labor (15 cents a day) has much to do with the inability of the Swatow sugar planter to conduct a profitable business. Prices are now so low as to leave little or no margin of profit to the grower and boiler and the export has fallen off about 50 per cent in recent years.

A short railway of standard gauge, 24½ miles in length, connects the port of Swatow with the city Ch'ao Chou Fu to the North. In 1903 a wealthy Chinese merchant obtained the concession for this line, employing a Japanese contractor to carry out the work, and Japanese employees of the Railway are in evidence at every station. Altogether there are nine stations in the 24½ miles, and the fares for the whole distance are 1st class 1 dollar 30 cents; 2nd class 80 cents; 3rd class 50 cents. Three trains run each way daily and the scheduled time between the termini is one hour 31 minutes. The line is said to have cost 3,500,000 dollars to construct, and pessimistic views are held by Europeans in regard to its condition. It is said to be running at a loss as it taps no large populous centres *en route*.



KAKCHIO, FOREIGN SETTLEMENT, SWATOW, VIEW FACING WEST—CHINA SUGAR REFINERY ON THE POINT

THE SHANTUNG RAILWAY

The Shantung Railway, completed in 1904, is about 245 miles long, running between Tsingtao and Tsinanfu, the capital of the province of Shantung, with a branch line of twenty-four miles to the Poschan coalfields, says the *Deutsche Banzeitung* of Berlin. The longitudinal section shows that the main line is made up of forty-two per cent level, twenty-nine per cent rise, and twenty-nine per cent fall, with a maximum grade of six per cent. The permanent way has been constructed to sustain ordinary traffic at a speed not exceeding 37.5 miles per hour. The article contains detailed accounts of the survey, as well as full particulars with regard to the cost of land, labour, transport and materials. The survey covered an area of a strip of land varying in breadth between 500 and 2,000 yards, and cost about £36 per mile, being completed at the rate of ten miles per month. The land was expropriated in accordance with Chinese law, 1s. 1d. being paid per square yard, with a surcharge of eight per cent for land in crop and near the townships. The earthwork was sublet in contracts of six miles in length, and was paid for at schedule prices, 1s. 4d. per cubic yard for ordinary earthwork, and 10d. per cubic yard for rock. All bridges and culverts were standardized, as well as the wooden and steel scaffoldings used for erection.

The railway was five years in construction and cost:—

	£
Land	89,700
Earthwork	148,000
Level crossings and fencings	2,700
Bridges and culverts	728.000
Permanent way	759,000
Signals, block-houses, etc.,	13.200
Stations	106,000
Repairing-shops, etc.	85,600
Materials (coals, etc.)	310,000
Administrative expenses	203,000
Interest on capital, etc.	200.000
	£2,644,600

or, including interest on capital, about £9,200 per mile. The gross receipts of the railway in 1905 were about £680 per mile, of which two-thirds were derived from goods-traffic. The working expenses for the same year were £265 per mile.

CEYLON TEA

At the annual meeting of the Ceylon Tea Traders' Association the following report on the crop for the year 1907 was included in the chairman's review:

"The Ceylon tea crop (182,023,732 lbs), for 1907, was the largest ever produced in the island, being nearly 10,000,000 lbs in excess of the yield for 1905, which was the previous record, and 12,000,000 lbs more than the outturn for 1906. It is satisfactory to know that the increase is the result of climatic conditions and of more careful and liberal cultivation. Speaking generally, I believe quality was well maintained during the past season and I trust the same system of careful plucking may be followed in 1908. The larger output cannot be attributed to fresh acreages coming into bearing, as the area of tea clearings planted up, during the past few years, is very limited.

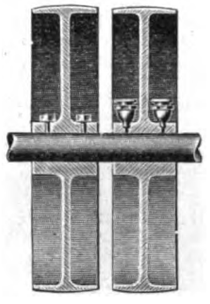
"In 1906 the range of averages of weekly sales was from cents 30½ to cents 39 whereas in 1907 it was cents 36 to cents 45. During the latter season 75 per cent of the weekly averages were above cents 40, and the averages for the year was cents 41, being the same as for 1896. In the intervening 10 years the rate never got nearer to this average than cents 38. It is interesting to note, however, that in 1895 the average was cents 47, so that, if business is good, there is the possibility of a further rise in prices this year. The advance has been chiefly in rates for teas from low and medium estates. Teas grown at high elevations have not benefited appreciably. After 10 years of waiting it was time for Low-country teas to have an innings, and the dividends being paid on last year's results by companies owning such properties show that they have reaped a fair harvest. High rates have no doubt made business from a buyer's point of view somewhat difficult but when the higher level has been established this will cease to be a disturbing element. Last year's shipments to United Kingdom were above those of 1906 by about 4,500,000 lbs. Russia took more tea from Colombo than any other country, outside of Great Britain, probably, in all, close on 28,000,000 lbs. including Greens and Dusts, &c., for brick making. The increase on 1906 is nearly 50 per cent. Australia came second with fully 24,000,000 lbs. and America third with 12,500,000 lbs, being slightly under exports to that Continent in 1906. Recent financial troubles there may account for the want of elasticity in that market, but, in view of the large sums spent in America by the Thirty Committee, better results were expected. I know it is argued that Ceylon and Indian teas go further than China's and that therefore a decrease in weight of tea used may mean an actual increase in tea drinkers."

BRITISH INDIAN RAILWAYS

The reports of Indian Railways which come to hand continue to bear witness to the prosperity of the companies during the first half of the current year, says the *Planters Gazette*. The Great Indian Peninsula's net revenue showed an increase of no less than 13.05 per cent., while the net earnings of the East Indian Railway amounted to Rs. 2,70,27,429, compared with Rs. 2,66,89,893 in the corresponding half of 1906. In the case of the Bengal-Nagpur the net receipts were Rs. 88,33,581, as against Rs. 83,42,733. The question of capital expenditure looms large in the reports of the two first named companies. The directors of the Great Indian Peninsula state that they have recently learned that Mr. Morley has set apart another £1,000,000 for the purchase of additional rolling stock, and that the company is to receive 800 wagons as its share. But, unfortunately, they add that the company's proportion of the additional capital grant of a million, which was referred to in the previous report, was no more than £90,000. The Secretary of State has, however, made a proposal to vary the company's contract of 1900 with a view of giving it power to raise, under his sanction and guarantee, whatever funds may become necessary for the development of the undertaking. The negotiations, however, are not yet completed. The East Indian Railway directors are seeking authority for the issue of debentures or debenture stock to an amount not exceeding £2,000,000 in order to meet expenditure for lines under construction, rolling stock, and improved accommodation for the constantly growing traffic. The Board of the Burma Railways also ask that the additional borrowing powers conferred upon them be extended from £1,000,000 to £2,000,000, and that the rate of interest be left to their discretion, instead of being fixed at 3 per cent. In the meantime the Secretary of State is advancing funds to the Burma Railways at 3½ per cent., and the Board are negotiating with him as to the course it may be advisable to take in case of the difficulties of raising a loan by a debenture issue continuing. It is obviously out of the question in the existing state of the money market to raise money at 3 per cent.

LUBRICATION OF LOOSE PULLEYS

It is a fact that Loose Pulleys are to the engineer a most bothersome piece of machinery, mostly due to the use of improper lubricants; generally, on account of imperfect alignment, too tight a fit or when subjected to an overload.



Bearings are liable to heat up due to the theoretically rough surfaces of two bodies, when one or both are in motion, being improperly lubricated by use of Oils which are thrown by centrifugal force from the bearing surfaces, leaving it dry; this will soon, by overheating, actually weld the parts together, called "seizing" and if the parts have seized and force is put to the relative parts, they will be strained, twisted or broken, causing a shut down.

It is apparent even to a layman that the most important condition to be met with in the care of machinery is proper lubrication and to prevent the liability of seizing and tearing apart of the relative portions of any mechanism or moving part.

This can only be successfully accomplished by the use of Albany Grease applied through a Loose Pulley cup. The special feature of this cup is the tube and the interior spindle, the latter being always in contact with the shaft, thereby conducting the least variations in its temperatures into the body of the grease cup no matter what position the cup may be in or speed of rotation the moving parts may have.

The centrifugal force is overcome, due to the Albany Grease remaining at the same consistency, except that portion adjacent to the spindle, which, liquifying, is drawn to shaft by capillary attraction or otherwise under the influence of molecular attraction, lubricating the bushing of the pulley.

When the loose pulley is at rest the grease stops its flow automatically and the bearing will be clean and free from the many objections attending the use of oiled bearings. There being no drip or spater causing annoying and expensive damages to material and fixtures.

The danger of fire which frequently occurs with oiled bearings or the damage to belts by the oil that is intended for the bearing, when loose pulleys are driven at high speed, produce endless troubles and annoyances to the Engineer. It has further been estimated that for every drop of oil actually worn out in lubricating a bearing, at least three other drops either never reach the surfaces to be lubricated or pass through unused, requiring an excessive amount of wiping; all this is entirely obviated by the use of Albany Grease which is a pure lubricant that has been in practical use for over 40 years and under the severest tests has been found the safest lubricant for all bearings, on account of its splendid wearing properties, having a great capacity for storing and carrying away heat, in other words, the property of keeping a bearing cool.

Albany Grease is made only by Adam Cook's Sons, 313 West Street, New York City, U. S. A.

GENERAL ELECTRIC COMPANY.

The sixteenth annual report of the General Electric Company, for the year ending January 31, 1908, shows gross profits of $6,586,653, after deducting all patent, general and miscellaneous expenses and allowances for depreciation and losses, and writing off $3,745,989 from factory plants. After paying $5,183,614 in dividends, a balance of $1,403,039 was carried to surplus account, bringing up the total surplus as of January 31, 1908, to $16,513,836. Last year the company's profits were $8,427,843, but the actual sales billed in the 1908 year amounted to $70,977,168, as against $60,071,883 in 1907,

The reports of the General Electric Company have for some time stood as an example of the way an industrial company ought to handle its finances and tell the public about them. The picture of the business year is made perfectly plain, and there are no frills in the asset and inventory values. The company has naturally had to make very heavy expenditures in the purchase of patents and will presumably have to continue doing so for many years to come in order. to keep abreast with the best electrical science of the day. The value of its patents, franchises and good will account stood on the books of the company at $8,000,000 on January 31, 1897. On January 31, 1907, this account had been reduced to $1 by progressive writings off, charged to the current operating surpluses. During the 1908 fiscal year the company spent $872,346 in acquiring other patents, licenses under patents and in patent litigation, and promptly charged it off to profit and loss, so that the company's patents, franchises and good will still stand on the books at $1. This is an admirable record, and the manner in which the book values of the factory plants have been written off, year by year, is no less admirable. Starting in 1897 with plants at Schenectady, Lynn and Harrison, valued on the company's books at $3,958,528, the company during the subsequent 15 years to date has spent $30,892,486 on expenditures and betterments to its plants, making a total of $34,851,014, from which 22 millions have been written off for depreciation and replacement, leaving the book value of the plants, on January 31 of the current year, at $12,900,000, entirely free from mortgage or other lien; an average valuation of but $2 per square foot of floor space, including land, buildings, power houses, machinery, tools and all other equipment.

The company on January 31, 1908, had no floating debt at all and had only $1,759 517 in accounts payable as against $29,857,727 of notes and accounts receivable. It reported $12,250,721 of cash, as against $3,910,709 in January, 1907, the difference being in considerable part accounted for by the funds derived during the year by the issue of $12,872,750 of 5 per cent 10-year convertible debentures and by the sale of $1,594,600 of new capital stock. Thus the company's cash position is excellent, as it is highly important that it should be. Collections of its very large accounts receivable will presumably be slow in dull times, although the company actually collected some $66,000,000 from notes and accounts receivable during the year, as against $53,000,000 collected in the 1907 fiscal year. All but $3,544,586 of the $27,094,348, representing the face amount of notes and accounts receivable on January 31, 1907, was collected during the year.

Among the important orders received during the year were: One hundred and sixty-five-mile transmission for Great Western Power Company, California; Detroit tunnel electrification; Cascade tunnel electrification; Great Northern Railway; electrification of Southern Pacific suburban lines in California; electrification of Hudson tunnels; additional equipment for West Jersey & Sea Shore, and for New York City terminal of the New York Central.

The following table shows the company's sales and orders for the last six years:

	Sales billed.	Orders received		Sales billed.	Orders received
1908...	$70,977,168	$59,801,040	1905...	$39.281,328	$35,094.807
1907...	60,071,883	60,483 659	1904...	41,699,617	39.060,988
1906...	48,146,902	50,041,272	1903...	36,685,598	39,944,454

PEKING AND KALGAN RAILWAY TUNNEL

The piercing of the tunnel in the section of the Kalgan or Chingchang Railway between Nankau Pass on the Southern end, and Kalgan, called Chang-chia-kao, is now accomplished, says the *P. & T. Times*.

This tunnel is 3,570 feet long, and its construction has taken the Chinese unceasingly for about a year and a half to complete.

The building has been carried out by Chinese contractors, who worked from the Southern as well as from the Northern end of the tunnel. In addition the work was also carried on through a shaft which was sunk several hundred feet from the highest point of the mountain pass, just where the inner section of the great Chinese Wall runs.

It is at the highest point of the Pass that the large tunnel is pierced and from it another 60 miles of road lead down towards Kalgan.

When this road, in about a year, is finished, it is expected that the bulk of the merchandise, which since time immemorial is carried over this Pass from China into Mongolia and Siberia, or vice versa, will be transported by rail. At present the stream of transport goes on camelback, on donkeys, mules, horses and carts, and it is a most interesting sight to watch the continuous lines of animals loaded with merchandise and raw products, passing along this historic route.

Credit for the building of the line is due to Director General Jeme, a graduate of Yale, and an A. M. I. C. E.

The main section of the tunnel works is in charge of Engineer Yente-ching, who was in the employ of the former American syndicate to build the Yue-han Railway. The Peking-Kalgan line will cover 130 miles. There is very little elevation from Fengtai to the Nankau Pass, but after entering the Pass the elevation rises 1,800 feet in the short distance of 10½ miles.

The rails are laid on narrow high embankments for the greater part of the whole road.

The recent rumor of a tunnel disaster at this section is entirely unfounded.

THE HART-PARR MOTOR

The introduction of the Hart-Parr motor, which operates by the use of petroleum, gasoline or alcohol, in the development of agriculture in the Philippines, promises to meet with exceptional success. Mr. C. E. Helvie, the sole agent of the manufacturers in the East, superintended a successful exposition of the capacity of the motor at Pasay, Manila, last month, in the presence of insular officials and leading hacenderos. The motor used weighed 9 tons with a nominal capacity of 22 h. p. and a brake force of 40 h. p. The trial was confined to plowing with two gangs of plows or twelve plows in all. This equipment turned furrows to a width of 10 feet and a depth of 8 inches and showed a capacity of plowing 25 acres in ten hours.

The labor required in all includes an unlicensed engineer and a helper as the motor is simplicity itself and specially built to eliminate the necessity of any degree of technical training for its successful operation.

The result of the trial was a pleasing surprise and the demand for the machine is daily increasing.

NARITA RAILWAY CO.—At the regular general meeting of the shareholders of this company a dividend was declared of 5.5 per cent per annum.

ASTOR HOTEL CO., LIMITED.—At the annual meeting of the shareholders of this company, a dividend of 5% was declared for the year.

HIGHLAND AND LOWLAND PARA RUBBER CO., LIMITED.—This company paid a final dividend of 7.5% making 12.5% for the year.

THE SHANTUNG (GERMAN) RAILWAY.—The announcement has been made from Berlin that this company has paid a dividend of 4%.

A. S. WATSON & CO., LIMITED.—The total balance to the credit of profit and loss, including the amount brought forward from previous year, amounted to $87,014.79 according to the report of this company for the year ended December 31st, and this amount was disposed of as follows:

General Managers' Commission of 5 per cent. on the net profits for the year $4,076.60; Remuneration of the Consulting Committee, $2,500.00; an Interim Dividend of 3 per cent. in November last absorbing $27,000; Dividend of 3 per cent. (making 6 per cent. for the year) which will absorb $27,000; to write off Building Improvements, Furniture, Fittings, Utensils of Trade, Aerated Water Plant, and Machinery, $20,000; to carry forward to 1908 Account, $6,438 19.

CONTRACTS AWARDED

The Hongkong Whampoa Dock Co. has secured the contract for the construction of two more vessels for the Canton Water Police Service to cost $64,000 each. The dimensions are 120 feet long and 18 feet wide. They are to have a speed of 14 knots.

Messrs. William H. Anderson & Co. of Manila secured the contract for supplying the Philippine Government with 36,000 barrels of cement. This firm handles the Green Island Cement and the price at which delivery is made is ₱4.75. The other bids were Messrs. Peabody & Co., Atlas cement, ₱5.00; Messrs. Findlay & Co., Alsen cement, ₱5.15 and ₱5.45; and Messrs. Macondray & Co., Pyramid Cement, ₱5.19.

Bids were opened by the Naval Department for the supply of 2,000,000 pounds of fresh beef and 60,000 pounds of fresh mutton at Manila, June 5th. The two bids were those of Messrs. Castle Bros.-Wolf & Sons who quoted .195 centavos a pound for beef and .1675 a pound for mutton; and the Philippines Cold Storage .1998 centavos a pound for beef and .1690 centavos a pound for mutton.

Bids for the construction of a coal scow of light draft, to be used at Batan Island, were opened last month by the Chief Quartermaster of the Division. Following are the bidders, with amount: Varadero de Manila ₱9,000; Cho Chung Lung ₱8,650, and Wong Tid ₱7,500. The estimates have been taken under advisement and award will be made later.

Bids submitted for the erection of six pumping stations for the new sewer system of the city of Manila were opened by the Municipal Board on June 5th. The bidders were: The Atlantic, Gulf & Pacific Co., Robert M. Loper, J. E. Ainsworth and Harry Thurber, the lowest tender being ₱145,914 and submitted by the Atlantic, Gulf & Pacific Co.

FAR EASTERN MINING OUTPUTS

TIN

April returns from the different mines are as follows:

Belat	Piculs	514
Bruseh	"	402
Gopeng	"	620
Kanaboi	"	186
Kinta	"	440
Kledang	"	275
Kuantan	"	255
Lahat	"	320
New Gopeng	"	247
Pusing Lama	"	420
Rambuntan	"	146
Redhills	"	330
Royal Johore	"	150
Sempan	"	100
Serendah	"	619
Sipiau	"	120
Tronoh	"	2,190
Société des Etains de Kinta	"	2,740
North Tronoh	"	271
Mendrus	"	171

GOLD OUTPUT

Raub Australian Gold Mining Co., April, 1,065 Oz.

Oriental Consolidated for March, Gross Receipts, $120,898 gold.

Philippine Gold Output.

Benguet Consolidated for May 202 Oz. and 30 Lbs cyanide at $30 a Lb.

Paracale Dredging Co. for May, 221 Oz.

PERSONAL

Mr. J. Howell May, of the Customs Service, has been promoted to the position of Outdoor Deputy Commissioner at Canton and also received the Order of Double Dragon of the Third Class.

Mr. J. W. Denny, the well-known mining engineer, is now connected with the native mines at Wuhu.

M. Klobukowski, the well-known French diplomat, will succeed M. Beau as governor-general of Indo-China.

Mr. H. E. Fulford, C.M.G., H.B.M's consul-general at Mukden, is in London.

Mr. A. E. Lewis, General Manager of the Sempan Tin Mines and the Malay and Siam Corporation, has severed his connection with these companies.

Mr. E. J. Valentine has been appointed inspector of mines, Negri Sembilan.

Sir William Taylor, the resident-general, left Kuala Lumpur for the homeland last month.

Mr. H. C. Belfield, British Resident of Selangor, will undertake the Resident-General's duties during his absence.

Sir Henry Spencer Berkeley, Knight, K. C., has been provisionally appointed an unofficial member of the Executive and Legislative Councils of Hongkong during the absence of Mr. Henry Keswick. Mr. Henry A. Ware Slade has also received a similar appointment to act during the absence of Mr. Edward Osborne.

Mr. T. G. H. Brayfield has been appointed second assistant marine surveyor of the port of Hongkong to succeed Mr. H. L. Fletcher, resigned.

Mr. T. Neave, Acting Superintendent Engineer of the Kowloon Docks, is enjoying a vacation to the Homeland. He will be absent for about six months.

Mr. A. H. Ough, architect of the firm of Messrs. Leigh & Orange, sailed from Hongkong last month for a visit to England via Siberia.

Mr. W. T. R. Preston, commercial agent for Canada in the Far East, sailed last month for Yokohama after a short visit to Hongkong.

Mr. G. Stothard, manager of the Malakoff Estate, province of Wellesley, and William Duncan, manager of the Nova Scotia and Rubana States, Perak, sailed last month for London.

Mr. F. Kilian, foreign manager of the Siam Commercial Bank, sailed for home early in May.

Mr. Wilbur T. Gracey, American consul at Tsingtau, is on a vacation in the United States.

Mr. Wilson, manager of the Kowloon Docks, returned from an extended trip to Europe, last month.

Dr. Tenney has been appointed Chinese secretary of the American legation at Peking to succeed Mr. E. T. Williams promoted consul-general at Tientsin.

Mr. Skinner Turner, British judge in Siam, has been transferred to Shanghai.

Dr. Wendschuh has been promoted from Manila to be German consul-general at Seoul, Korea.

Mr. A. E. Dencker, the well-known mining engineer, was recently appointed metallurgical engineer to the Oriental Consolidated Mining Co. of Korea.

Mr. C. G. Warnford Lock has assumed the management of the Sempan Mines, Limited. Mr. N. Dalrymple is the resident director.

Mr. A. A. Bristow, formerly manager of the Ipoh Marble Works, has accepted the position of chief engineer of the Lahat Mines, Limited.

Mr. Georges Bain of Kuala Lumpur has been chosen as European representative of the Eastern Smelting Co. and will leave for London at an early date.

Mr. M. Wilde, of the firm of Messrs. Stang, Wilde & Co. of Tientsin, is to take a six weeks' vacation which he will spend in Europe.

Towky Foo Choo Choon, the most prominent Chinese mine owner in the Straits Settlements and the Federated Malay States and who recently secured a mining concession from the Chinese government in the island of Hainan, has been elevated to the mandarinate of the third rank by the Chinese Emperor, and Mr. Go Choo Chye, another prominent Chinaman, has been elevated to the mandarinate of the fourth rank.

Dr. Wooley, formerly of the bureau of science at Manila, and until recently director of the Royal Laboratory of Siam, has been promoted to Director of the Royal Department of Public Health for Siam. Dr. Ralf T. Edwards, also of Manila, takes charge of the laboratory.

OBITUARY

The report has been received from Davao of the murder by two treacherous Manobos of Henry M. Ickis, mining engineer and topographer of the Division of Mines, Philippine Bureau of Science, on April 1st, while Mr. Ickis was making a reconnoissance through Northern Mindanao. The unfortunate engineer was a native of Creston, Iowa, and a graduate of the Colorado School of Mines, class 1902, and was in his 28th year at the time of the tragedy. Upon graduation, Mr. Ickis accepted a position as mining engineer in Sonora, Mexico, and remained there until 1903, when he accepted a position with the Philippine Division of Mines. He was very well and favorably known among the miners and prospectors of the Philippines by whom the sincerest regret is expressed at his untimely passing. He was the author of several short papers on the geology and mineral resources of the Philippines.

FAR EASTERN ENGINEERING, CONSTRUCTION, COMMERCIAL AND FINANCIAL NEWS

ELECTRIC RAILWAYS, LIGHTING, POWER, TELEGRAPH LINES, AIRSHIPS, ETC.

WIRELESS IN MINDANAO.—A field wireless equipment has been landed at Malabang for use of the troops there.

YOKOHAMA TELEPHONE SYSTEM.—The installation last month of 400 new phones brings the number of subscribers up to 2,227.

OSAKA MUNICIPAL TRAMS.—The system of electric trams has been completed and the rates charged make it cost 10 sen from one end of the city to the other extremity or 2 sen a ward.

WUHU ELECTRIC LIGHTING.—A company has been formed for the purpose of installing an electric plant at Wuhu and permission has been granted to the company to proceed with the work.

TOKYO LONG DISTANCE TELEPHONE.—This service connecting Tokyo and Yokohama with Sendai, Yamagata and Fukushima, has been in operation since the last of March and is giving general satisfaction.

JAPANESE AIRSHIP.—Yamada Isaburo, the airship inventor, has perfected a machine which he claims is capable of resisting a wind force of 15 meters a second. Trial trips were successfully made recently at Tokio.

TIENTSIN CITY TRAMWAYS.—The extension of this system to include the French concession is now under way. The line will begin at the Southern end of the Japanese concession and proceed along the Rue l'Amiraute to the French Bund.

NAGOYA HYDRO-ELECTRIC PLANT.—The contract for the installation of this plant has been secured by the General Electric Company. When completed power will be generated at 6,600 volts by four 3-phase, 2,500-kw. 60 cycle, 360 revolution, water-wheel driven motors.

ELECTRIC INSTALLATION IN DUTCH OIL FIELDS.—The plant of the Royal Dutch Petroleum Co. on its oil fields in East Sumatra is being equipped with an up-to-date electric generating plant. The substitution of electric power, it is estimated, will reduce the cost of operation by ten per cent.

CHINESE TELEGRAPHS.—The ministry of posts and communications have authorized the purchase of shares in the Chinese Telegraph company at the rate of $110.00 for every $100 share. The shares will be redeemed at the offices of the Chinese National Bank at Peking, Tientsin, Hankow, Shanghai or Canton.

WIRELESS IN CHINA.—The recommendation of Sir John Jordan, that the Imperial government of China establish wireless stations at convenient points along the entire sea coast of the empire is being favorably considered at Peking and not a few stations have been authorized and established in Northern and Southern China.

KOHSICHANG CABLE LAID.—The latest reports from Bangkok, indicate that the cable connecting Kohsichang with the mainland has been completed by the Eastern Extension Telegraph Co. for the minister of public works of Siam. This puts the Siamese central government in direct touch with the police power of the island.

KOBE-OSAKA ELECTRIC CO.—The three million yen loan of this company has been placed with the firm of Messrs. Samuel Samuel & Co., the bonds carrying 6% redeemable in six years. The firm advancing the loan agrees to provide for the investment of 2,700,000 yen in a plant. The work of construction will begin as soon as the plans have been submitted and approved.

PORT ARTHUR-CHEFOO CABLE.—The Japanese government has decided to repair the cable which was cut during the war by the Russian government. It is claimed to be a legitimate prize of war. It was laid by the Great Northern Telegraph Company in 1901 under instruction of the Russian government and no attempt has been made by the company to repair it since the war.

TOKIO ELECTRIC POWER AND RAILWAY AGREEMENT.—The railway has agreed to purchase from the power company commencing July 1st, 1910, a maximum of 10,000 kil. per hour at 1.6 sen per kil. per hour and for the year following a maximum amount of 15,000 kil. an hour at the same price to be continued for ten years. By this agreement the railway will save at least 30% on the cost of power.

AUCKLAND ELECTRICAL INSTALLATIONS.—The municipality has authorized the installation of an electric lighting plant to cost $125,000 and a company has been formed with a capital of $500,000 for the installation of a ferry service across the bay and further connection with Auckland by a tramway with Lake Takapuna, a distance of 10 miles. The material is being supplied from the United Kingdom.

JAPANESE WIRELESS SERVICE TARIFF.—The Tokyo government has authorized a charge of 25 sen for five European words and five sen each for additional words for messages sent from the stations on shore to steamers out to sea. The maximum distance between station and ship has been fixed at 120 miles. Stations have been established at Chosi, Shiwomisaka, Oseaki and on Tsunojima. Every telegraph office in the empire is authorized to take messages for these stations for transmission to steamers at an additional charge of 20 sen.

RAILWAYS AND RAILWAY SUPPLIES

CHEKIANG RAILWAY.—The section connecting Hangchow with Linping was opened to the public May 14th.

CHENGCHOW-HONANFU EXTENSION.—The progress on the construction of this extension of the Kaifeng line is progressing slowly.

KEELUNG-TAKAO RAILWAY.—This new line which was recently opened to traffic cost 25,000,000 yen and took about 14 years to complete.

BRANCH OF PEKING-HANKOW TO SHANGHAI.—It was decided at a meeting of the directorate on May 19th to construct a branch line to Shanghai.

PEKING-KALGAN EXTENSIONS.—Extensions from Kalgan to Kulun, to Jehol, and to Suiyden are proposed and will probably be constructed at an early date.

CHENGTING-TAICHOW BRANCH.—The Belgian Syndicate began the construction of this branch which is to be a feeder of the Peking-Hankow Railway, early in May.

RAILWAY TO TURKESTAN.—The military governor of Ili has asked permission of Peking to draw on the gold deposits of the province for the construction of a line from Ili to Chinese Turkestan.

SHIMBASHI-KOBE EXPRESS.—With the completion of the doubling of the line between Toyohashi and Kamagori and Okasaki and Anjo, it is the purpose to reduce the time between Kobe and Shimbashi.

TIENTSIN-PUKOW RAILWAY.—The proposed route of this line will very probably pass through Suchow, Linpi, Fengyang, Tingyuan and Chochow and thence to Kiang-Pu-Hsien to come out at Pukow.

AUSTRALIAN RAILWAYS.—During the fiscal year 1907 the Australian lines which cost over £137,000,000 yielded 4.35% on the investment which defrays all interest charges and leaves a surplus of £992,947.

JOHORE AND F. M. S. RAILWAY JUNCTION.—Gemas has been selected as the junction of the Johore railway and the Federated Malay States Railways, and the railway shops, etc., are now under construction at that point.

PENANG HILL RAILWAY.—The legislative council of the Straits has decided to purchase Strawberry Hill for the purpose of altering the sharp curves on this line which interfere with the successful operation of the road.

TOKIO RAILWAY CENTURY.—The director of this company proposes celebrating the completion of 100 miles of track under its control in the near future. With the completion of two small branches the mileage will reach 105 miles.

YOKOHAMA-TOKYO DOUBLE LINE.—The railway bureau proposes the construction of a double line connecting these two points for the purpose of being prepared to handle the increased traffic incident to the exposition of 1912.

JAPANESE REFRIGERATING CARS.—Twenty refrigerating cars for the railway works at Omiya at a cost of yen 3,000 a car. Thirty additional cars are now under construction and will be placed on the Tokkaido line. These cars carry two tons each.

LABOR FOR ANHUI RAILWAY CONSTRUCTION.—The indisposition of the natives of Anhui to work on the railway there has necessitated the employment of several thousand laborers who worked previously on the Shanghai-Nanking Railway construction.

FRENCH RAILWAY ENTERPRISE.—The railway from Tonkin is now completed half the distance to Mengtze and is expected to arrive at that point in October. The earthworks and masonry have been completed 180 miles beyond this point and the station at Yunnan is ready for occupancy.

TSITSIHAR-ANANCHI RAILWAY.—The contract for the construction of this line in Northern Manchuria covering a distance of 20 miles has been let by the Chinese government to Messrs. Telge & Schroeder of Tientsin. The materials will be supplied by this firm and construction will begin in July.

WESTERN AUSTRALIA EXTENSIONS.—Work has commenced on the Wannerook extension and tenders havbeen invited for the construction of the Narrogin-Wickepin Line. The extension of the Preston Railway to Boyup, according to the *Australian Hardware Journal*, was delayed owing to the scarcity of water.

AMOY RAILWAY.—According to the correspondent of the *China Mail*, the station at the Amoy end is a fine, substantial building and shops are being built for the German and American locomotives. The work of construction is progressing slowly. A consignment of 20,000 sleepers have arrived but the white ants are causing trouble with this material.

GAN-ETSU RAILWAY.—The construction of the extension of this line between Kitakaka and Niitsu through the mountainous district and which, when completed will be 50 miles in length, is in progress from both termini. It is expected that it will take over four years to complete this branch owing to the difficult character of the country and the engineering problems involved.

MANCHURIAN BROAD GAUGE.—The South Manchuria Railway Company has met with remarkable success in the opening of the broad gauge and last month the line was opened from Tairen to Mukden. The section between Changchun and Kunchuling was opened on May 21st; to Teiling May 22, and to Mulden May 25. First class accommodation including sleepers and dining cars will be available as soon as the stock arrives from America.

THE AMUR RAILWAY.—The construction of this important line while authorized by the Duma will probably be delayed indefinitely. The route also has not yet been decided upon although a number of schemes have been submitted. It is understood that the line will run through Russian territory and will probably start from Karymskaia, on the Trans-Siberian Railway, and finish at Khabarovsk, it will be about 1,320 miles long, and cost over £21,000,000. In these circumstances the Trans-Siberian Railway will be duplicated from Omsk to Karymskaia, at a probable cost of £13,-160,000, which, together with the cost of construction of the Tiumen-Omsk and Amur Railways, amounts to a grand total of £37,528,420.

PUBLIC AND PORT WORKS, DOCKS, WHARVES, ETC.

IPOH MARBLE QUARRY WORKS.—These works have met with the greatest degree of success and a large order of new and modern machinery is being installed.

SAIGON WATERWORKS SYSTEM.—Plans and specifications have been completed for the construction, equipment, and installation of an extensive waterworks system at Saigon.

CEBU WATERWORKS.—The Philippines government has authorized the municipality of Cebu to issue bonds to the value of ₱200,000 for the purpose of providing the city with an up-to-date water system.

AMERICAN CONSULAR BUILDINGS.—Congress has authorized the expenditure of $1,373,643 for the purchase of sites and the erection of consular buildings thereon, at Shanghai, Hongkong, Yokohama, Chemulpo, Nagasaki, etc.

NEW HAIHO RIVER BRIDGE.—The expenditure of Tls. 150,000 has been authorized for the construction of a bridge over the Haiho river at Chia-Chia Ta-chiao. The bridge will be of iron and replace the wooden structure at that point.

YOKOHAMA HARBOR WORKS.—The constructing engineer in charge of these works has submitted plans for the construction of sheds and railways in connection with the new docks, together with some amendments to the original draft.

PORT OF TUNGCHOW.—The work of improving the foreshore and reclaiming the necessary area for the establishment of a handsome bund has been under way at this point for some time, preparatory to the opening of the port to foreign trade.

SUNGEI BESI WATERWORKS.—At a recent meeting of the Sanitary Board of Kuala Lumpur, it was decided that it would cost more than the Resident would consider to provide the town with a water system and the scheme was abandoned. The sum named by the Resident was $15,000.

PEKING WATERWORKS.—A Chinese company organized with a capital of Tls. 1,000,000 and known as the Peking Waterworks Co. has been granted a concession by the authorities to install a complete water system for the Chinese capital. Taotai Chow Hsuth-hsi is the chief promotor.

WATER TOWER AT TIENTSIN.—An additional twenty feet is being added to the height of the water tower which will give an additional pressure to the city hydrants there. The materials used are fire bricks supplied by the Chinese Engineering and Mining Co. and cement by the Green Island Cement Co.

HAINAN NAVAL BASE.—Peking has authorized the taotai of Hainan, through the Viceroy, to proceed to Yulin Bay and make the preliminary survey with a view to establishing a naval station to be used as a base for the South China Squadron and to arrange for the construction of fortresses and railways at that point.

PENANG RECLAMATION.—The dredging operations in the harbor have been highly satisfactory and the area in front of Swettenham Pier, Church Street Ghaut Wharf and the South Channel has been dredged at an average cost of 6.43 cents per ton. The dredge Crab and the tug Puffin were purchased by the department for this work.

YOKOHAMA WATERWORKS.—The chief engineer of the Yokohama Waterworks has drafted a scheme for the extension of the system that would entail the expenditure of yen 7,000,000. He proposes to begin the work in 1910 and finish it in five years and to redeem the loan necessary to meet the expenditure he recommends the raising of the water rates by 20%.

REINFORCED CONCRETE WHARF AT ADELAIDE.—The Colonial Sugar Refinery Co. of Adelaide has completed plans for the construction of a reinforced concrete wharf. The piles will be made on the spot. The *Australian Hardware* states that this is the first of the kind proposed in South Australia and more construction of the character same will follow if successful.

II.—STEAM NAVIGATION ENCOURAGEMENT SUBSIDY (Y3,483,955).

1.—Nippon Yusen Kaisha.....	Y2,200,000
2.—Toyo Kisen Kaisha.....	750,000
3.—Mitsui Bussan.....	230,000
4.—Osaka Shosen Kaisha.....	200,000
5.—Mitsui Bushi.....	100,000

III.—SHIPBUILDING ENCOURAGEMENT (Y1,995,440).

The receivers of this subsidy are the Mitsu Bishi Yard at Nagasaki, the Kawasaki Yard at Kobe, and the Osaka Iron Works, but the estimate for this purpose every year fails short of the amount required.

IV.—GRANT FOR TRAINING SEAMEN (Y25,000).

1.—Grant to the Seamen's Relief Society.....	Y 5,000
2.—Grant to the Imperial Sea Distress Assistance Society.....	20,000

In this connection it may be added that according to the Japanese Press, during last year one battleship, two armoured cruisers, and one second class cruiser were launched at the Imperial Naval Yards, and one dispatch-boat each at the Mitsu Bishi and Kawasaki Yards. The Mitsu Bishi Yard has in hand orders for the construction of vessels representing 80,000 tons in all, including a sister-ship of the "Tenyo" and "Chiyo," and the Kawasaki Yard orders for vessels representing a total of 35,000 tons. The number of vessels built in Japan during last year is given as follows:—

	No. of Vessels.	Tonnage
Imperial Naval Yards.....	4	53 100
Mitsu Bishi Yard.....	6	37,698
Kawasaki Yard.....	13	17,417
Osaka Iron Works.....	17	6,729
Ishikawajima Yard.....	6	1,330
Uraga Yard.....	2	89
Others.....	100	11,355

—*Japan Chronicle.*

CANTON-HANKOW RAILWAY STATEMENT

The first number of the official report of the directors of this company issued recently contains the information that the receipts of the company from all sources for the year 1907 amounted to taels 388,678,495 which added to the amount brought forward from 1906 made a total of taels 5,691,974.43. The disbursements for the year amounted to taels 2,030,894,385. Tenders for the earthwork on section six were advertised for and the contract awarded at taels 224,400.

Tenders for the supply of sleepers, and other materials have been submitted by Messrs. Arnhold, Karberg and Company, Messrs. Carlowitz and Company, Messrs. Jebsen and Company, Mitsui Bussan Kaisha, Messrs. Dodwell and Company and Messrs. Siemssen and Company.

PHILIPPINE MINING NOTES

Typhoon weather obstructed the work of the Bua Mining Company of Baguio, Benguet, during the month of May. The flume became obstructed and the tramway damaged somewhat by the flood. Repairs are however under way and there will be no serious delay.

The Benguet Consolidated also suffered slightly from the storm, but everything was repaired in about 36 hours. The six stamps are now in operation.

Manager A. J. MacDonald of the Tambaga Mining Co. operating on the old Tambaga workings in the Camarines, left for the scene of operations, the latter part of May, with pumping equipment, and it is believed that within 30 days the water will be taken off to the workings at 100 feet. This mine was abandoned in 1896 and part of the machinery still remains in good order. The mine has been flooded since that time. The Tambaga is considered a rich property and produces free milling ore of a high grade. The company is one recently formed and referred to in the FAR EASTERN REVIEW some time ago.

CURRENT NEW YORK WHOLESALE PRICES OF METALS, MINERALS, CHEMICALS, ETC.

Selected from the Engineering and Mining Journal

		U. S. Currency.
ABRASIVES.—		
Bort, good drill quality	carat	$ 85 00
Carborundum, grains	lb	.10-.17
Corundum	"	.07-.10
Emery, grain	"	.035-.045
Pumice Stone, American powdered	100 lbs	1.60-2 00
ACIDS.—		
Hydrochloric 20°	lb	1.25-1.50
Nitric, 38°	"	4.25-4.625
Sulphuric, 66° bulk	ton	18 00
Aluminum, Sulphate Com'l	lb	1.25-1 75
Antimony, needle	"	.05- 065
Arsenic, white	"	.045-.05
ASPHALTUM.—		
Trinidad	ton	28 00-30.00
California	"	51.00-27.00
Bleaching powder, 35%	100 lb	1.25-1.40
Blue Vitriol	"	5 50
Bone Ash	lb	.02½-.04
Borax	"	.045-.0 625
*Caps detonating	M	7 50
CEMENT.—		
Portland, American	500 lbs. bbl	1.55-1.60
Foreign	" "	2.25-2.90
Rosendale	300 " "	.85
*Green Island	375 " "	2.65
*Alsen		2.75
*Dromedary		2 50
*Rizal		2.50
*Independencia		2.50
CLAY, CHINA.—		
American common	lg. ton	8 50-9 00
Foreign	"	10.00-17.50
COALS.—		
*Japanese		5 25
*Australian		5 50
Copper	lb	.16½-.16¾
Dynamite 40%	"	.20
Redspar ground best	sh. ton	14 00
ierk, BAmerican	M	30.00-40 00
Imported	"	30 00-45.00
Fire clay, St. Louis Mill	ton	2 50
Fuse-Blasting	1,000 ft	7 50
Graphite-American ore, common	lb	.01-10
Artificial	lb	.06
Gypsum-Fertilizer	sh ton	7 00
Powdered	sh. ton	12 to-20
Lead	lb	.03¾-.04¼
Magnesite-Greece, crude, 95%	lg. ton	8.00-10 00
Bricks, domes	per M	160-200
Manganese, pure, 98-99%	lb	.06
Ore, 80-85%	sh. ton	20.00 to 50.00
Mercury, export flask	75 lbs	36.00 39.00
PAINTS AND COLORS.—		
Litharge American P'w'd	lb	.06½-.06¾
Ochre, Am. Com	sh. ton	8.50-9.00
Paris green, pure, bulk	lb	.26
Turpentine, spirits, bbl	gal	.44½-45
White lead, Am. dry	lb	.05¾- 06
Am. in Oil	"	.06¼-.06¾
Zinc, white, Am. extra dry	"	.06¼-.05¾
Phosphates, Acid	per unit	.65-.70
Florida hard rock	lg. ton	10.25-10 50
Land pebble 68%	"	5 25-5 50
Potassium Cyanide (98-99%)	lb	18-19
Platinum	oz	27.00-29 50
Platinum, Scrap	oz	20.00-21.00
Spelter	lb	053-.055
Nickel	lb	.045- 06¼
Cobalt unrefined	"	.20-.45
*Powder, black blasting A	lb	.1¾
*Judson	"	.130
Pyrite, Domestic Non-arsenical, lump	unit	.11-.11¾
Imported non-arsenical lump	"	.13-.13¾
Imported, arsenical	"	.12-13
Saltpeter crude	100 lbs	4 50-5 00
Silica, Lump quartz	lg. ton	5 00-6 00
Ground quartz, ordinary	"	13 00-15 00
Glass sand, ordinary	"	2 75
Silver	oz	.61¾
Sodium cyanide (100% KCN)	lb	.18-.19
*Steel, octagon drill	lb	.14
Sulphur, Louisiana prime	lg. ton	22 00
Roll	100 lbs	1 85-2.15
Flowers sublimed	"	2.20-2 60
Talc—Domestic	sh. ton	15 00-25.00
Italian, best	"	35 00-40.04
Tin	lb	.02
Zinc	"	.15
Dust	"	.05-.06¼

*Manila quotation.

HEMP STATISTICS, 1st JUNE, 1908.

(Courtesy of C. S. NICHOLSON, *Secretary Manila Chamber of Commerce.)*

Arrivals of hemp at Manila up 31st May 1908		290,629 *Bales*
Arrivals of hemp at Cebu up 31st May 1908		112,183 *Bales*
		402,812 *Bales*
Stocks on hand in Manila and Cebu on 1st January, 1908		129,359 *Bales*
TOTAL		532,171 *Bales.*
Export to all ports to date 31-5-08	396,253 *Bales.*	
Local consumption estimated at	2,000 "	398,253 *Bales.*
Total stocks at Manila and Cebu on 1st June, 1908		133,918 *Bales.*

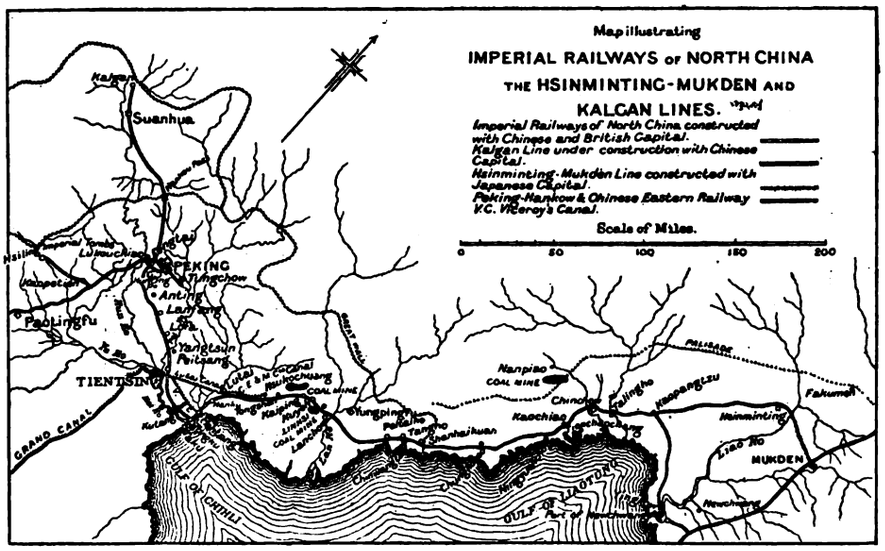
EXPORT OF HEMP, MAY, 1908.

Date	*Vessel*	*London*	*L'pool*	*Atlantic U. S.*	*Pacific East California*	*Continent*	*Australia*	*Other Pts.*	*T Bales*
May	Fwd:—	119,345	46,516	102,812	14,407	22,374	5,794	15,102	326,350
" 1	Loongsang	407	.....	.....	.....	117	.....	200	724
" 2	Rubi	100	250	.....	.....	1,150	.....	200	1,700
" 5	Taming	.....	.....	.....	.....	.....	.....	250	250
" 7	Kumeric	.....	.....	.....	3,500	.....	.....	100	3,600
" 8	Yuensang	.....	.....	.....	.....	.....	.....	50	50
" 9	Peleus	.....	.....	.....	1,180	.....	.....	.....	1,180
" "	Yawata Maru	.....	.....	.....	.....	.....	.....	200	200
" "	Zafiro	.....	.....	.....	.....	.....	.....	250	250
" "	Sikh	.....	.....	10,875	.....	.....	.....	.....	10,875
" 11	St. Egbert	3,900	.....	.....	.....	.....	.....	.....	3,900
" "	Clan McMillan	.....	.....	.....	1,500	.....	.....	.....	1,500
" "	C. Lopez y Lopez	.....	1,620	.....	.....	.....	.....	.....	1,620
" "	Tsinan	.....	.....	.....	.....	.....	.....	2	2
" 12	Tean	.....	.....	.....	.....	.....	.....	40	40
" 15	Loongsang	1,200	800	.....	.....	575	.....	.....	2,575
" "	Rubi	.....	.....	.....	.....	.....	.....	150	150
" 16	Bombay Maru	7,200	.....	.....	.....	.....	.....	.....	7,200
" 18	Kumano Maru	.....	.....	.....	.....	.....	1,190	.....	1,190
" 21	Satsuma	.....	.....	4,850	.....	.....	.....	.....	4,850
" 23	Prinz Sigismund	.....	.....	.....	.....	.....	140	.....	140
" "	Shawmut	.....	.....	.....	2,047	.....	.....	179	2,226
" 25	St. Egbert....Cebu	6,100	.....	.....	.....	.....	.....	.....	6,100
" "	Kaifong.....Cebu	.....	.....	.....	.....	.....	.....	40	40
" 31	Poona.....Cebu	3,682	2,694	.....	.....	150	.....	.....	6,526
" "	Satsuma.....Cebu	.....	.....	13,067	.....	.....	.....	.....	13,067
" "	Sungking....Cebu	50	.....	.....	.....	.....	.....	.....	50
		141,984	51,880	131,604	22,634	24,366	7,124	16,763	396,355
	LESS	100	.....	.....	2	.....	.....	.....	102
		141,884	51,880	131.604	22,632	24,366	7,124	16,763	396,253

THE PEKING-KALGAN RAILWAY

The completion of the Peking-Kalgan Railway which is now under construction will open up to development all the country North of Peking and provide transportation by the most direct route and at reasonable rates for freight that now must be carried by the expensive caravan routes. The line will be 130 miles in length and the entire supervision of the construction is under the direction of Director General, Mr. Jeme Tien Yow, the well-known Chinese engineer and graduate of Yale and whose capacity for the work is well demonstrated by the success attained in piercing the country at Nankau Pass where nearly 5,000 feet in all of tunneling will be necessary to connect the Northern and Southern sections of the road.

The section in which the tunnels are being constructed and where the capacity of the Director General to overcome natural obstacles is being demonstrated, includes 12 miles of the most difficult country, including the Pass referred to. The first section of the road between Fentai, near Peking, and Nankau Pass, a distance of 33 miles, was completed and opened to traffic on September 30, 1906. This practically completed what might be called the South division of this line. In the meantime construction work has been in progress between the Pass by way of Suanhua and on the tunnels. It is expected that the entire line will be completed and open to traffic by December 31, 1909.



As recently announced, the largest tunnel about 3,570 feet in length has been completed and the work on the other and lesser tunnels is progressing rapidly.

Some idea of the character of the country through which this road passes and its importance to the development of trade in North China may be gathered from the following excerpts from an article published in the *Shanghai Mercury* of recent date:

"The building has been carried on by Chinese contractors who were working from the Southern as well as from the Nothern end of the tunnel, in addition to which the work also was carried on through a shaft which was sunk several hundred feet from the highest point of the mountain pass, just where the inner section of the great Chinese Wall runs. (The Chinese name of the Wall is "Wan-Li-Chang-Cheng," which means "the 10,000 mile rampart.")

"This great wall, covering 1,400 miles in length, was built 221 B. C. as a defence against the Mongolian hordes. The wall attracts year by year thousands of visitors, who have rather a hard time to get there. However, in another year, visitors will find an easy access to the wall by rail from Peking direct. At present the journey can be done from Peking taking a ricksha ride to the Hsi-Chi-Men, where there is the nearest station.

"In travelling from Tientsin, the Imperial Railway of North China leads to Fengtai, from where direct trains are found twice a day for Nankau Pass Station, which is the present southern terminus of the Kalgan Railway. At Nankau Pass donkeys or mules as well as mule-litters will be found. It needs about four hours climbing on the old pass route until the point can be reached where the inner section of the great wall exists. It is here on the highest point of the Pass where the large tunnel is pierced and from where another 60 miles of road lead down towards Kalgan where the outer section of the Great Wall is located.

"When this road is finished, it is expected that the bulk of merchandise, which since time immemorial has been carried over this Pass from China into Mongolia and Siberia, or vice versa, will be transported by rail. At present all the freight goes on camel backs, donkeys, mules, horses, carts, etc. It is a most interesting sight to pass the continuous upward and downward lines of animals loaded with merchandize and raw products, when one journeys and passes from Nankau Pass along this historic route.

"The main sections of the tunnel works are in charge and are supervised by Engineer Yen-Te-Ching, who was in the employ of the former American syndicate to build the Yue-Han Railway (viz., the Canton-Hankow Railway). He is a graduate of an American University.

"There is very little elevation from Fengtai to Nankau Pass. But after entering the Pass the elevation rises 1,800 feet in the short distance of 10½ miles. At the highest point the Railway crosses the Great Wall and here is the 3,570 feet long tunnel. In journeying along the narrow pass it can be seen that rails are now laid over high built embankments on the larger part of the whole road ."

While the construction of this line still is in progress a further extension to open up Northern China is being proposed. According to recent advices from Peking, the Ministry of Posts and Communications favor the extension of this line to Kulun and President Chen Pi of the ministry advances the following argument in its favor:

"(1) It will bring Mongolia into intellectual touch with the outside world.

"(2) It would facilitate communication between Peking and Mongolia.

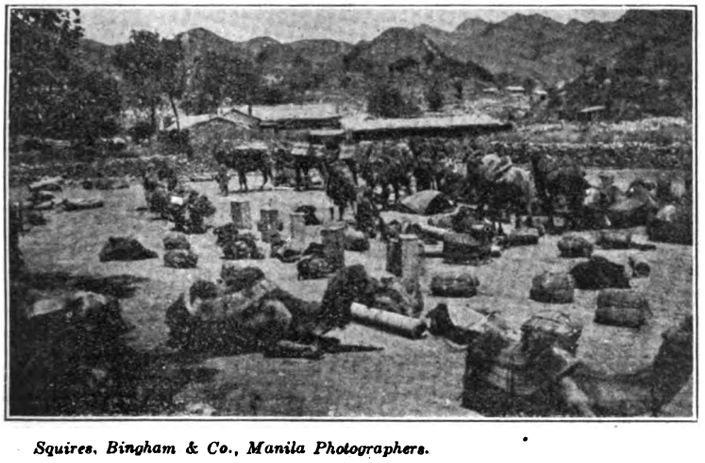
"(3) It would have high strategic value.

"(4) It would give a great impetus to the development of Mongolian commerce.

"After considerable discussion it was decided that a settlement of the matter should be postponed pending an enquiry into ways and means of securing the funds, and the preparation of an estimate by Taotai Jeme Tien-yu on the subject of the probable cost."

In his recent work on *Railway Enterprise in China*, Mr. P. H. Kent, in referring to the Peking-Kalgan Railway, says:

"The effect of this line will be to open up the country to the north of Peking and greatly



Squires, Bingham & Co., Manila Photographers.

NOONDAY REST OF CARAVAN UP NANKAU PASS, TRANSPORTING RAILWAY SUPPLIES

CAMEL CARAVAN ON NANKAU PASS—NOTE STONE RAILROAD BED AND WILLOWS PLANTED ALONG LINE

to cheapen as well as to expedite the transit of goods from the interior to Tientsin. Kalgan is the junction of the great caravan routes from the west and from the north, by way of which the great bulk of wool and skins from Mongolia and the distant province of Kansuh, which form the more valuable portion of export cargo from Tientsin, finds its way to the foreign market.

"As regards the question of the ultimate continuation of the Kalgan line across Mongolia, opinions seem to differ. Some years ago the Russians had a scheme for a branch from the Trans-Siberia Railway, by way of Urga and Kalgan to Peking. A flying survey was made at the time, and it was found that virtually the only engineering difficulties would be experienced in the crossing of the Yablonoi Mountains, north of Urga. This scheme, however, has now, apparently, been abandoned. And it must be admitted that though such a line might, in certain circumstances, be politically justifiable, according to the point of view, and while its construction would be warmly welcomed by residents of the Far East, whom it would bring many days nearer home, it is difficult to see how it could be made to justify its existence as a purely commercial undertaking. At any rate it is one of those projects the realization of which will only come, after all, with the distant future."

In a review of railways in China, the *London and China Express* refers in a recent number to the Peking-Kalgan line and says:

"China, it is true, has been making the Peking-Kalgan line. We may perhaps here note incidentally that the prolongation of this line to Kiachta, and so to Irkutsk, would bring about a revolution in the possibilities of mail and passenger traffic between Europe and China. Roughly, the railway distance to Central Europe would be rather better than half the mileage of the sea route. Somewhere within the time of 10 to 13 days it would then be possible to traverse from North or South of China to almost any capital in Europe, proceeding *via* the Kalgan-Kiachta-Irkutsk line, and then over the Siberian Railway to Moscow, and thence connect with the other European lines. But to resume, China has obtained the funds for the Peking-Kalgan line from the surplus earnings of the Imperial Railways of North China, and the line has been constructed by men who have gained their knowledge of construction work on the same line. We believe we are quite correct in asserting that the trace for the line was run by the foreign engineers of the North China line, though they have had no part in the actual work."

In a foot note Mr. Kent states that the estimated cost of the Peking-Kalgan line, including rolling stock, is 6,000,000 taels, or an average of £6,000 to £7,000 a mile.

The railway map accompanying this sketch is reproduced from one of Mr. Kent's illustrations.

*TAOTAI JEME TIEN-YOW, M. INST. C. E.

The Chief Engineer and Director of the Peking-Kalgan Railway received his foreign education in Yale University, the United States of America, where he graduated in 1878. He also studied in England where he matured his engineering profession, being elected a few years ago a member of the well-known Institute of Civil Engineers of London.

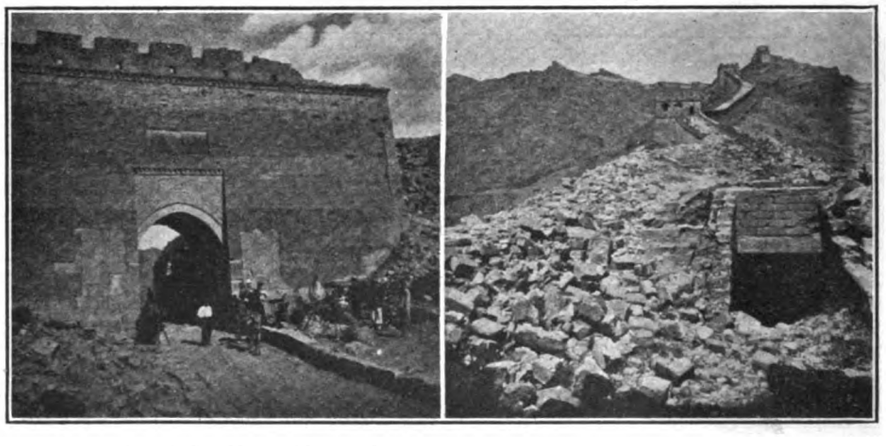
On his return from abroad, Mr. Jeme worked under the Imperial Railways of North China for a good many years, first as Assistant Engineer and later as Resident Engineer. In the latter capacity he had to travel to many places in North China, then untraversed by railroads, and, consequently, was able to acquire much and varied experience in railway construction. At one time he was stationed in Tongshan, at another in Tongku, or in Yangts'un, or in Tientsin, but to whichever section he was put in charge he gave satisfaction to his chief, Mr. C. W. Kinder, C. M. G., M. Inst. C. E., the General Manager and Engineer-in-chief of the Northern Railways. He saw the completion of the Peking-Tientsin line, and the extensions to Shanhaikuan and Newchwang and other places. When the Chinese government decided a few years ago to construct a line between Peking and Kalgan, to which it was resolved no foreign interference was to be permitted, Mr. Jeme was selected for the important post of Chief Engineer on the strong recommendation of H. E. Viceroy Yuan Shih-k'ai, who was then Director-General of the Railway Administration of North China The practicability of this scheme was doubted in some quarters, especially among foreigners. Mr. Jeme, however, undertook the task. He doggedly and patiently worked on. It is true he had many difficulties to surmount, but by the autumn of last year, he had the satisfaction to report the completion of his line as far as Nankau, and the Great Wall will be reached by the end of this year, a remarkable achievement considering the tremendous natural obstacles to be overcome in the Pass. At the opening ceremony of the railway, Mr. Jeme received many congratulations for his ability and success. All the newspapers of North China, Chinese and foreign alike, eulogized his work and services. Nor does he not deserve the encomiums, for as pointed out by the press, when the history of railway construction came to be written, Mr. Jeme Tien-yow will be remembered as the first Chinese engineer who had been able to build a railway and see to its completion without foreign assistance and supervision.

Naturally, when his reputation was established, railway syndicates tried to obtain his services. He was offered the post of Engineer-in-Chief of the Canton-Hankow Railway by the Viceroy of the Two Kuangs. But as most of our readers know, Viceroy Yuan Shih-k'ai could ill spare him from North China, and, instead, recommended another rising engineer, Mr. Kwong, for the post. Mr. Jeme became Assistant Director of the Railway, from which position he was promoted to the Chief Directorship when Director Chên Chao-ch'ang was transferred to Manchuria a couple of months ago. Mr. Jeme now, therefore, holds the chief position of chief engineer and chief director of the Peking-Kalgan Railway. Finally we are glad to hear that Viceroy Yuan Shih-k'ai has recommended the throne to confer the

*World's Chinese Students' Journal.

Squires, Bingham & Co., Manila Photographers.

HIGHEST POINT ON NANKAU PASS AT TUNNEL OPENING ON PEKING-KALGAN R.R.—TUNNEL INDICATED BY X



Squires, Bingham & Co., Manila Photographers.

GATEWAY AND ROAD THROUGH GREAT WALL WHERE RAILWAY PASSES

VIEW OF GREAT WALL WHERE IT PASSES INTO MANCHURIA—PARTLY TORN DOWN

degree of Chinshih on him. It will be remembered that when the Ministry of Education held an examination in Peking last year of those returned students who had studied in foreign countries, he assisted the examiners in going over the papers on engineering subjects. In Chinese officialdom an aspirant to an office must needs have a literary degree in order to entitle him to become a regular official. Although Mr. Jeme holds the rank of a Taotai or Intendent of a Circuit, he possesses no Chinese degree, and the Viceroy's effort to get him one is for the purpose of putting him on a footing with other regular Chinese officials and to signify a recognition by the Chinese government of the foreign education of China's son.

NEW PHILIPPINE MINING CO.

The success of mining ventures in the province of Benguet, and particularly Antamok district, is attracting the attention of the mining world, and the development of that region is practically assured. Capital, for years timid, is now assured and not a few mining companies are being promoted or projected to develop properties that promise good returns on investment. The latest prospectus received is that of the Headwaters Mining Co., Incorp., of Antamok, Benguet, with a capital of ₱600,000. The directors are well known businessmen, British and American, and professional men of the Philippine Islands who have been connected with successful mining enterprise in Benguet. They are F. Stuart Jones, of Messrs. Smith, Bell & Co., Thos. Colston Kinney, attorney and president of the Bua Mining Co., H. T. Fox, of Smith, Bell & Co., L. O. Hibberd, and N. Peterson. The secretary is F. J. Higham. The mine office is at Antamok, Benguet, and the Manila office at No. 16 Carenero.

The following is the announcement made by the company:

"The 'Headwaters' is the latest gold strike and the best prospect yet discovered in the Benguet Mining District. It comprises a group of twelve adjoining claims, or about 250 acres, and is situated at the source of the Antamok River about half a mile above the "Bua," "Consolidated" and "Camote" mines, all of which are in successful operation. The district, therefore, has been proved.

"Two well-defined ledges of free milling ore have been opened up on the property and traced by means of open-cuts and drifts for four thousand feet in length. The assays, taken at various places along the line of strike, average over ₱40.00 per ton; and the ledges run from 6 to 15 feet in width.

"Abundant pine timber and waterpower are to be found on the property; and a good wagon-road runs within a stone's throw of the western claims. Baguio, the Summer Capital of the Government of the Philippine Islands, is four miles distant from the mine. Skilled native labor for mining is obtainable at from ₱1.00 to ₱1.50 per day; and supplies of all kinds can be purchased at Baguio at reasonable prices.

"The Headwaters Mining Co. has been incorporated under the laws of the Philippine Islands for ₱600,000, all stock being fully paid up and non-assessable.

"The Directors of the Corporation are well-known business and mining men who have thoroughly investigated the proposition.

"For purposes of development ₱100,000 worth of this stock will be sold at 25% of its face value.

"This fund will be used solely for the further opening up of the mine and the blocking out of ore. When sufficient ore has been placed in sight to warrant it, the remainder of the Treasure stock will be sold at par for the purpose of erecting a 60 ton per day milling and cyanide plant.

"From this plant the probable results will be as follows:

Number of tons treated per year, 312 days, 60 tons per day, 18,720.		
Estimated Value of product per ton.		₱20.00
Gross value of output		₱374,400
Cost of Production @ ₱6.00 per ton..	₱112,320	
Administration and Sundry Expenses	40,000	152,320
Net profits for year		₱222,080
or about 37% on the Capital Stock.		

"In making this calculation the value of the ore has been estimated at less than one half of the assay value and the cost of production has been increased ₱2.00 per ton over and above the actual cost as shown by other mines in operation in the same district.

"Subscriptions for the before mentioned shares should be made to the Secretary, No. 16 Carenero, Manila, P. I. Should the amount required be oversubscribed the shares will be issued pro rata."

	Oz. gold per ton	Value	Oz. silver per ton
Headwaters Ledge No. 1	1.00	20.67	6.48
Headwaters Ledge No. 2	1.82	27.29	1.06

N. B. These values are given in gold.

NEW PUBLICATIONS

Thirteenth Volume of Rosenstock's Directory, which contains a complete alphabetical list of business firms and foreign residents of the cities of Hongkong, Manila and Shanghai, has been received and a casual review of the volume gives the impression of continued application to the work of giving patrons the best possible service. That the publisher is endeavoring to give the residents and businessmen of Hongkong, Manila and Shanghai, a directory that will meet with their approbation, is indicated by the foreword of the latest revision. He says:

"The Directory is a necessity to modern commercial and social life. *No Publication Has More General or Extended Use.* It is referred to constantly by all classes of people at all seasons. It is used not only by residents of the city that it covers but by all strangers who come within its gates. The Directory is used by the travelling public arriving by the large mail steamers calling at Oriental ports every day, and by those who consult the Directory Libraries, which are maintained by directory publishers the world over—it being the custom of directory publishers to exchange publications, which are kept on file in each city for the benefit of the public.

"It is the earnest desire of the Publisher to improve and make each succeeding volume of greater value and utility to his patrons than its predecessor. The next issue will contain a directory of Hankow and Tientsin, and other additions will be made as time and conditions permit. No great enterprise was ever developed in a day; so it is with directory-making, but we assure our patrons that we will ever endeavor to do a little better to-morrow than we are able to report on our accomplishment of to-day. We want our patrons to co-operate with us by assisting our agents in their work of collecting data for the directory and thus help us make what is most to be desired, by patron as well as publisher, an accurate and up-to-date book of ready reference."

Classification is the publisher's offering to aid the businessman in adding to system, the economy in time and effort, and in this volume, his object seems to have been most satisfactorily attained.

The Journal of the Philippine Commission and the Inaugural Session of the Philippine Legislature has been received and covers the work of these two bodies from October 6th, 1907, to February 1st, 1908. The volume is bound in cloth and the Bureau of Printing from whose presses the journal was issued announces experiments in anti-vermin book varnish to protect the book from rodents and insects.

Typical Steel Railway Bridges is the title of a volume from the pen of W. Chase Thompson, M. Can. Soc. C. E., assistant engineer, Dominion Bridge Co., Limited, Montreal, Canada, and author of "Bridge and Structural Design," and issued from the presses of the Engineering News Publishing Co., New York. This volume is a sequel to "Bridge and Structural Design" and the author announces in his foreword that "The inclusion of the estimated weights of the structure is an important feature of the book, as estimating forms a large part of the work of the designer. Where detail drawings are given, the estimates have been figured very closely and the relative weights of main material and of details are thus accurately obtained. In other cases, a percentage of the weight of the main material in trusses has been added to the details. The method of determining this percentage has been clearly demonstrated. The author trusts this book may be of service to those in actual practice, as well as to students and draftsmen who are less familiar with the methods used in designing offices."

"Albany Grease" and *"Albany Grease Cups"* is the title of a booklet of pleasing design received from Adam Cook's Sons, New York. Reference is made to the two lubricating lines of this firm and the advantages derived from their use. This Cup Leaflet is made available free of cost by addressing Messrs. Adam Cook's Sons, 313 West Street, New York City.

RUBBER EXHIBITION

The following circular was recently issued by Secretary H. C. E. Zacharias of the Planters' Association of Malaya:

"With further reference to the forthcoming International Rubber Exhibition in London, I beg to inform you that at a Meeting of the local Exhibition Committee it was resolved—in order to meet the wishes of what seems to be the majority of exhibitors—to rescind the local regulations previously decided upon and to substitute the following:

"1. Each exhibit will be shown under the name of the Estate whose produce it is;

"2. The quantity of Raw Rubber allowed to be shown by each property is limited to 28 lbs., but it is left to the Exhibitor to make up this total in as many different grades of rubber as he pleases;

"3. There will be no Selection Committee at all, and full discretion is left to the Exhibitor to show whatever seems good to him;

"4. Each Exhibitor will be charged $10—this charge being in addition to any voluntary contributions which have already been invited from *all* Estates in the Peninsula;

"5. Each Exhibitor has to see that his case of exhibits reaches Messrs. Kennedy & Co., of Penang, not later than the 15th of July; and Messrs. Kennedy & Co., in conjunction with myself, will see that all exhibits are shipped on one Bill of Lading by Mail Steamer leaving Penang two days after that date.

"As you will see, the time at our disposal is very short, but my Committee trust that you will make special efforts to ensure on your part that the Malayan Section of the Exhibition does worthily illustrate the important industry that it is to represent.

HANGYANG IRON AND STEEL WORKS SECURES BIG CONTRACT

It has been practically decided by the directorate of the Canton-Kowloon Railway to place an order with the Hangyang Iron & Steel Works for the supply of all the steel rails, bridge steel and iron work necessary to the construction of this section of the road. This is the first occasion that so large an order has been placed in China for construction material by a railroad financed in part by foreign capital. According to the report of the managing director, Taotai Wei Hun, the purchase of steel and iron at the Hangyang works will mean a saving of many thousands of dollars. This saving is made on freight and greater expedition in delivery as well as in first cost.

The works have supplied the Peking-Hankow Railway with material in small quantities, but this is the largest order yet filed from any one section. The materials supplied for the Chinese companies in Liangkiang as well as Szechuan and Lianghu have given satisfaction to the directorates and if this big order is delivered promptly and in good order, the future of the works is assured.

FAREASTERN ENGINEERING, CONSTRUCTION, COMMERCIAL AND FINANCIAL NEWS

ELECTRIC RAILWAYS, LIGHT, POWER, TELEGRAPHS, TELEPHONES, AIRSHIPS, ETC.

TIENTSIN-CHEFOO CABLE.—The break in this line was located last month near Chefoo and repairs were promptly made.

F. M. S. MOTOR SERVICE.—The service connecting Ampang and Kuala Lumpur, recently discontinued, has been renewed.

TIENTSIN ELECTRIC'S NEW HOME.—The new office building of the staff of this company was occupied at the first of the month.

KEIHIN ELECTRIC RAILWAY EXTENSION.—The Japanese government has sanctioned the extension of this line from Shinagawa to Aoyama.

CHINESE NAVY INSTALLATIONS.—An order has been placed with Messrs. Wilks & Jack for a complete electric installation for another Chinese gunboat.

MANILA ELECTRIC LIGHTING.—The city of Manila increased its estimate for lighting for 1908-09 to $100,000 against $50,000 the previous year. This sum was to provide for the installation of 480 arc lights.

RANGOON ELECTRIC COMPANY.—This organization has just completed its second year with the announcement that the street lighting system and the final section of the tramway track have been installed.

SHINTATSU TRAMWAY COMPANY.—This line connecting Fukushima and Jisska and built by the Shintatsu Tramway Co. was inaugurated on June 1st. The company has been incorporated with the Dai Nippon Tramway Co.

CHINESE TELEGRAPHS.—The administration has ordered all the land lines in Honan and Chili, connecting Hsinyangchou and Paotingfu, to be shifted so as to run parallel with the route of the Peking-Hankow Railway.

RANGOON MOTOR SERVICE.—Permission has been granted the firm of Messrs. P. Michael & Co. of Rangoon to put in a motor service for the transportation of goods between the go-downs and wharves. A 30-h. p. car will be used.

SHANGHAI-TIENTSIN CABLE.—The Great Northern Telegraph Co. found the break in the cable about 8 miles from Shanghai and repaired it, last month. It appears that about half-a mile of cable had been cut out and stolen.

PEKING ELECTRIC TRAMWAYS.—A foreign company has made application to the government of Peking for a franchise to install an electric railway system at Peking with provision for its redemption by the government at the end of 10 years.

CHEFOO-PORT ARTHUR CABLE.—According to an agreement between Tokyo and Peking the cable between these two points will be the joint property of the two governments, the Chinese collecting all the tolls at the Chefoo end and the Japanese doing likewise at the Port Arthur end.

SINGAPORE-JOHORE CABLE.—Superintendent Bucknell of the F. M. S. Telegraphs and Telephones is in charge of the laying of the cable between these two points under the straits. Linked with the land wires, connection will be effected between Penang and Singapore by the peninsular through line.

FENGTIENG TELEGRAPHS.—According to the agreement between the Japanese and Chinese governments, the Japanese telegraph line must be installed along the South Manchurian Railway only and the Chinese language must be used exclusively in the transmission of messages in the trading ports of Manchuria.

MUSASHI ELECTRIC RAILWAY.—The work of construction has commenced on the new line that is to connect Hiroso, Tokyo, and Harasuma and it is expected to be finished before the exposition. In addition to the line just mentioned, the company has been granted a charter for the construction of a branch line connecting Chofu and Kamata via Ikegama.

ANGLO-JAPANESE GENERATING COMPANY.—On May 29th a meeting of the promoters of this extensive scheme which has been hanging fire was held at Tokyo and it was given out that arrangements for financing the project were concluded. The British capitalists will put up over eleven millions and the Japanese six millions. The company has completed a contract to supply power to many enterprises including the city of Tokyo.

CHINESE TELEGRAPH MATERIAL.—The Peking government has decided to establish a factory at Tientsin for the manufacture of materials required for the extension of the Chinese telegraph service. With the nationalization scheme, it is estimated that over 10,000 miles of line will be included in these extensions. The first extension in the south starts at Szemao and will be carried to Hokou, Kwangnan and Kaifu, in the Yunkewei provinces.

UNDERGROUND WIRING IN MELBOURNE.—The city of Melbourne has appropriated £48,000 for constructing conduits for the purpose of placing all telephone and telegraph wiring underground. The tunnels will be bored 25 feet below the surface of the streets so as to be clear of electric light cables, gas, water and sewerage pipes. They will be 6 ft. 6 in. high and 4 f. 6 in. wide so that workmen will have easy access for repair work, says the *Australasian Hardware Journal*.

TELEPHONE TENDERS INVITED.—The Postmaster General of Western Australia has advertised for bids on the following, which will be opened September 7th: 1 common battery switchboard of nine sections in all (for Fremantle), together with all associated frames, racks, power plant, and parts, as per specification No. 204; 650 telephone wall sets, 150 telephone table sets, 800 protectors, 90 extension switch and bell sets (complete), 30 switchboards for four lines, 20 switchboards for six lines, 5 switchboards for 12 lines, 5 switchboards for 24 lines, 20 telephone wall sets for party lines, 10 telephone table sets for party lines. Tenderers must state the country in which the articles tendered for have been made or produced, and, in the case of manufactured articles, where the material has been made or produced.

RAILWAYS AND RAILWAY SUPPLIES.

HONAN RAILWAYS.—The Pien-Lok Railway in Honan was opened to traffic on June 13.

HOKUYETSU RAILWAY.—The purchase price of this line has been fixed at 7,186,000 yen.

GOYU-TOKOHASHI RAILWAY.—The doubling of this line was completed in time for the opening to traffic June 1st.

HITOYOSHI RAILWAY.—The line between Hitoyoshi and Yatushiro was opened to traffic by the government on June 1st.

NAKATSU-SAKASHITA RAILWAY.—This new line of the Central Western system of Japan will be completed by the middle of July.

CANTON-HANKOW RAILWAY.—The most difficult part of the Southern section of this line, that as far as Mongfukong, has been surveyed.

TSITSIHAR-AIGUN RAILWAY. The survey of this route is under way and it is estimated that construction may begin next spring. It will take over four years to complete the road.

SOUTHERN MANCHURIAN RAILWAY LOAN.—The amount raised by the floating of the loan for £2,000,000 will be spent reconstructing the Mukden-Antung line and the Kirin-Changchun line.

SHANGHAI-SOOCHOW-NINGPO RAILWAY LOAN.—The Chinese 5% railway loan has been oversubscribed and the closing price showed three-quarters of one per cent. premium. This issue was for £1,500,000.

HONAN RAILWAY ENTERPRISE.—Two new lines are being agitated by the natives of Kaifengfu, Honan, one to connect that city with Chinanfu in Shangtung, and the other to connect with Chengtingfu.

HOANGHO RAILWAY BRIDGE.—It is not improbable that this river will be bridged by the Pukow-Tientsin Railway at Ai-shan opposite Waishan where the river is about two li broad with an average depth of 20ft.

KALGAN-KULUN RAILWAY.—The extension of the Peking-Kalgan railway from Kalgan to Kulun and thus connect the capital with Mongolia by rail has been the subject of favorable discussion by the authorities at Peking.

SEOUL-FUSAN RAILWAY.—On the 30th of June the government of Japan will turn over to the administrators of this company public loan bonds to the amount of 20,123,800 yen, the price of the railway as appraised by the centralization board.

SOUTH MANCHURIAN RAILWAY.—The Pullman coaches arrived for this road during June and it is expected that by August American trains comprising first class coaches, sleepers, dining and parlor coaches will be running regularly over the line.

TSINPU RAILWAY SURVEY.—According to the *Peking and Tientsin Times* the price asked by the German engineers for the plans and specifications of this line has been considered exorbitant and China proposes to make new surveys. The price asked was Tls. 200.000.

SHANGHAI-HANGCHOW RAILWAY.—If the construction continues without any delays the line will be completed next winter, according to the best expert advice. The section to Chang-an is expected completed by the end of this month and to Kiahsing early in the fall.

JAVA RAILWAYS.—The Dutch government has appropriated the sum of twenty million guilders to be expended in railway extensions in the colony and it is expected that when completed, the distance between Batavia and Sourabaya will be lessened by one day's travel.

TIENTSIN-PUKOW CONSTRUCTION. The sites for the railway depots at Pukow have been selected and construction will begin in August. The Tientsin depot will be constructed near the depot of the Imperial Railways of North China and the shops and warehouses in the same locality.

JAPANESE IMPERIAL RAILWAYS.—Statistics show that the government railways of Japan employ 39,427 vehicles. The figures include 1,919 locomotives, 4,989 passenger cars, and 30,841 freight cars. Besides these there are 1,427 cars for construction use and 551 private cars for oil conveyance.

CANTON RAILWAY CONSTRUCTION.—The contract of the Canton government to construct the Canton-Whampoa Railway and the Waichow Chinchow Railway is not being fulfilled as anticipated. The work on the Chinese section of the Hongkong Canton section is the only evidence of activity to date worthy of note.

PEKING-KALGAN RAILWAY.—Taotai Chan Tien-yu, chief engineer in charge of construction of this line, reports that he expects to complete the line in 1909. The tunnel near Chu-yungkuan is expected to be finished in the fall. The steel and bridge material will soon be delivered at Nankow. Russian material will be used.

INDIAN RAILWAY ACTIVITY.—The estimate of £20,000,000 for the annual expenditure is meeting with favor by the Indian Railway Committee and the London *Times* remarks that the expenditure is not only justifiable but that the construction of 100,000 miles of railways in India would not suffice for future requirements.

TIENTSIN-PUKOW SURVEY.—The director general and the chief engineer is now busy on the survey of this line and will pass through Chuchow, Ting-yuen, Fengyang, Lingpih and Suchow, all in Anhui province; then through Hsuchow-fu, Hsiaohsien, and Tungshan in Kiangsu; and to Yihhsien and Hangchwang in Shantung.

TRANS-SIBERIAN RAILWAY.—Cabled advices from London state that the Duma has almost unanimously approved the scheme to double the line from Omsk to Karytska and 24,000,000 roubles are made available for that purpose. Authority is also extended to increase the rolling stock to a capacity of forty trains daily over the extended system.

SHANGHAI TO NEWCHWANG DIRECT.—Arrangements have been made with the Imperial Railways of North China whereby the Chinese Engineering & Mining Co., Ltd., may issue tickets direct from Shanghai to Newchwang and the company announces that the most direct route to Peitaiho is via Chinwangtao at which port their steamers call regularly.

AMOY RAILWAY.—The construction of the road connecting Amoy and Chiang-chin, a distance of 30 miles, is not progressing as rapidly as anticipated. One correspondent writes that at the present rate of progress it will take about twelve years to complete the work. The entire project is being supervised by Chinese and the capital is exclusively Chinese.

SHANTUNG RAILWAYS.—The branch line connecting Chi-chia-chwang and Te-chow and incidentally the Tsinpu line and the Luhan line will be constructed by French and Belgian contractors and upon its completion it may be extended as far as Taiyuanfu making direct connection from the Shansi capital to Kiaochow. The cost of the first section referred to is estimated at three million taels.

BURMA RAILWAY EXTENSION.—According to *Railways*, the Burma government will shortly authorize the construction of an extension of the Henzada- Bagayet line *via* Donabyu which, when completed, will traverse a distance of 94 miles. The proposed extension will be an improvement of the East Dagaloop Railway and there will be a branch from Donabyn to Pantanaw of about 24 miles. The extension will commence at Henzada, 85 miles from Bassein. There will be altogether 229 bridges of all finds, 24 being classed as major bridges, the most important on the line being one over Akyab river, which is estimated to cost about a lakh of rupees. The whole project, the Henzada, Donabyu, Bagayet and Donabyu Pantanaw lines, is estimated to cost Rs. 83,00,000.

PUBLIC WORKS, DOCKS, WHARVES, ETC.

PEKING WATER TOWER.—The water tower for the Peking waterworks outside Teng Chi Men is now under construction.

BANGKOK DOCKS.—The Bangkok *Times* states that this company has booked over Ticals 250,000 of contracts during the first half of the year.

AMUR RAILWAY BRIDGE.—It is reported that the bridge proposed to span the Amur river for the Amur railway will be the longest of its kind in the world and will cost 5,000,000 roubles.

FOOCHOW DOCKYARD.—The scheme is on foot to extend and improve the Foochow Dockyard with a view to put the plan in shape so that China may build the ships of her new navy here.

SEOUL WATERWORKS.—The tests of the water supply system for fire protection has been successful. The water was turned on all over the city the latter part of April and there has been a steady demand for connections.

BATAVIA HARBOR IMPROVEMENTS.—Plans have been concluded for the expenditure of 6,500,000 guilders in the deepening of the harbor at Tanjong Priok, the lengthening and broadening of the quays and the construction of a new railway station.

ZAMBOANGA WATERWORKS AND ELECTRIC LIGHTING.—A company is being formed, says the *Zamboanga Herald*, for the purpose of installing a water supply and generating plant to provide Zamboanga with water and lighting. The capital stock is ₱200,000.

FOOCHOW DOCKYARD.—Plans are being considered at Peking providing for the extension and the improvement of the equipment of the dockyard there with a view to having the greater portion of the warships for the new navy built there by the government.

FAR EASTERN COMPANY REPORTS

YENSUI HARBOR SUGAR MANUFACTURING CO.—This company, which has completed another half-year in its undertakings in Formosa, announces a net income of 375,000 yen from which a dividend of 20% per annum was directed paid.

STRAITS TRADING COMPANY, LIMITED.—At the half yearly meeting of this company a dividend of $1 and a bonus of 50 cents a share were directed paid.

THE DORAL OIL COMPANY, JAVA.—This company has just distributed a dividend of 550% against 425% for the year 1906.

JUGRA ESTATE, LIMITED.—The shareholders of this company decided at the recent annual meeting to pay the balance of the cumulative preference dividends due to March 31st, 1908, which with a dividend paid in December made a total for the year of 55 shillings a share. £318 12s 6d was carried forward.

VALLAMBROSA RUBBER CO.—This company has announced a dividend of 55% for the last year which is equal to the previous year's dividend.

NETHERLANDS TRADING CO.—After providing for the usual amount for the reserve out of the net income of this company for the year ending December 31st, a dividend of 8% was declared.

BANK OF MADRAS.—A dividend of 10% and a bonus of 1% was declared for the year ended December 31st, and out of the balance of the net income there were transferred to the reserve, R.2,50,000 and a balance carried forward of R. 2,63,596.8.3.

TOKYO FARMERS' AND MECHANICS' BANK.—This association declared a dividend of 10% per annum for the half year and carried forward yen 13,518.

PACIFIC MAIL COMPANY.—The annual report of the Pacific Mail Steamship Company for the year ended April 30, 1908, just published, shows gross earnings of $4,336,312, as compared with $4,839,244 in 1907, and expenses of $4,367,635, as compared with $4,294,548 in 1907. After charging off $397,494 for depreciation a deficit is shown for the year of $428,817, as compared with a surplus in 1907 of $130,405.

AMAGASAKI COTTON MILL, COMPANY.—The dividend for the half year was at the rate of 40% per annum. This company has taken over the Oriental Cotton Mill Company.

SHANGHAI MUTUAL TELEPHONE CO., LIMITED.—The directors of this company have recommended a dividend of 6% and to carry forward Tls. 4,860.43.

TRONOH MINES, LIMITED.—The net profits for the year were £43,480 12s. which together with amount forward from previous term made £70,727 7s. 1d. available and out of which dividends amounting to 25% were directed paid for the year ended December 31st, 1907. The balance of £30,727, was carried forward to next account.

SUNGEI WAY RUBBER COMPANY.—At the third annual meeting a final dividend of 4d. was paid on the paid up shares and 3d. on the other shares less income tax, making in all for the year 41.6%.

TIENTSIN WATERWORKS CO., LIMITED.—From the net profits for the year a dividend of 7% was directed paid and Tls. 1,374 carried forward.

SHANGHAI BUILDING & INVESTMENT CO., LIMITED.—This company paid a dividend of 6% and carried forward Tls. 2,170.83.

THE BENGAL COAL CO., LIMITED.—The report of the directors of this company contains a recommendation for a dividend of 60% for the half-year ended April 30th together with a bonus of Rs. 10 a share, besides carrying forward Rs. 1,95,752.

BUKIT RAJAH RUBBER CO., LIMITED.—A final dividend of 20% making 30% in all for the year has been declared by this company and the sum of £1,696 carried forward.

JAPAN SPINNING CO.—A dividend of 16% per annum for the last half-year was declared at the regular meeting last month and a handsome balance carried forward to next account.

EHIME SPINNING CO.—The report of the directors shows a loss of yen 25,539 for the half-year.

TOKYO RICE AND CEREAL EXCHANGE.—At the regular meeting a dividend of 5% per annum was declared for the term.

EAST INDIAN RAILWAY CO.—The directors of the East Indian Railway Company have recommended a dividend of 15s. per cent on the deferred annuity capital and the deferred annuity capital class D in addition to the guaranteed interest of £2 per cent for the half-year, making a total return of guaranteed interest and dividend in respect of the year 1907 of £5 16s. 4d. per cent, as against £5 18s. for the year 1906.

NIPPON FLOUR MILL CO.—A dividend of 10% per annum was recently declared by this company at the half-yearly meeting for the term.

THE TOKYO CARDBOARD COMPANY.—At the half-yearly meeting of the shareholders of this company a dividend of 14% per annum was declared for the term.

THE YOKOHAMA ELECTRIC RAILWAY CO.—At the regular meeting of the shareholders of this company a dividend of 6% per annum was declared.

TOKYO MERCHANDISE EXCHANGE.—A dividend of 7% per annum for the half-year was recently declared by this association.

FEDERATED SELANGOR RUBBER CO., LIMITED.—The directors of this company have declared a dividend of 8% and carried forward £592.

PERAK RUBBER PLANTATIONS, LIMITED.—The report for the year shows a net profit of £694 making £1,708 available, out of which the balance of preliminary expenses was written off and £591 carried forward.

YOKOHAMA ELECTRIC LIGHT CO.—This company declared a dividend of 14% for the half year ended April 30th, 1908.

THE WEST POINT BUILDING CO., LIMITED.—An interim dividend of $2 a share was declared by this company for the six months ended June 30th.

THE HONGKONG LAND INVESTMENT CO., LIMITED.—An interim dividend of $3.50 for the half-year ended June 30th has been paid.

UNITED LANKAT PLANTATIONS CO., LIMITED.—An interim dividend of 5% together with a bonus of 5% was paid by this company July 1st.

SOUTH MANCHURIAN RAILWAY CO.—This company held its regular half-yearly meeting on June 27th and a dividend of 6% exclusive of state shares was declared at the rate of 6% per annum. The following are the accounts as presented by the directors:

	Income. *Yen.*	Outlay. *Yen.*
Railways	5,675,462	3,344,168
Mines	837,153	582,963
Harbor	425,644	496,526
Lands	82,526	165,275
Hotels	42,940	58,194
Electric Lighting	59,247	61,930
Various	412,951	708,731
Interest on Loans		976,300
Difference between Issue Price and actual Receipts from Loans		58,578
Totals	7,540,656	6,452,69

	Yen.
Net Profit	1,087,981
Brought over from previous account	925,907
Total available	2,013,896

The above was distributed as follows:—

	Yen.
Reserves	54,399
Dividend (6 per cent) exclusive of State's shares	60,000
Special Reserve	200,000
Rewards to Officers	97,000
Carried forward	1,602,496

HONGKONG & SHANGHAI BANKING CORPORATION.—The directors of this corporation have recommended the following distribution of profits for the term:

Dividend of £2 per share.	
Add to the Reserve Fund	$500,000
Write off Bank Premises %	250,000
And carry forward about	2,000,000

BELL'S ASBESTOS EASTERN AGENCY, LIMITED.—The balance of profit and loss account at Dec. 31 last, inclusive of £638 brought forward from previous year, shows a credit of £2,069. The directors recommended passing £200 to "Reserve," to write £500 off "Purchase of Trading Rights," to pay a dividend of 15 per cent for the year free of income-tax, and to carry forward £648.

THE HONGKONG & WHAMPOA DOCK CO., LTD.—The report of the Board of Directors of the Hongkong and Whampoa Dock Company, Limited, to the ordinary half-yearly meeting of shareholders, to be held at the offices of the company, Queen's Buildings, Victoria, Hongkong, on Monday August 24, reads:—

"The Directors have now to submit to you their report, with a statement of accounts for the half-year ended 30th June, 1908. The net profit for the six months, after paying interest due and all charges, amounts to $274,577.68, to which has to be added the balance brought forward from last account, $441,442.51—$716,020.19; and from this have to be deducted: Directors' fees, $10,000.00; Auditors' fees, $750.00—$10,750.00; leaving available for appropriation, $705,270.19.

"The directors recommend that a dividend for the half-year of 8 per cent or $200,000 be paid to shareholders, that $50,000 be passed to a special account (No. 1 Dock extension), that $65,820 be written from the value of Kowloon Docks, $4,602.95 from the Cosmopolitan Dock, and the balance $384,847.24 be carried to the new account.

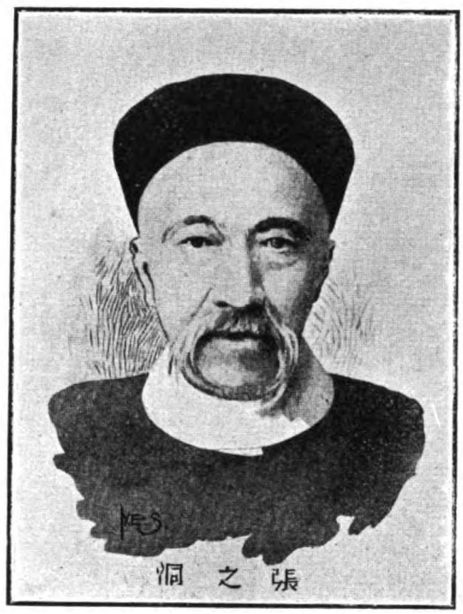
"The new work in hand at the end of 1907 has all been completed and is included in the past half-year's working. There is a fair amount of new work at present in hand."

THE FAR EASTERN REVIEW

COMMERCE ✪ ENGINEERING ✪ FINANCE

VOL. V. MANILA, P. I., SHANGHAI, AND YOKOHAMA, SEPTEMBER, 1908 No. 4.

CHINA'S TWO GREAT VICEROYS



H. H. CHANG CHIH-TUNG
VICEROY OF THE LIANG HU
(Hupeh and Hunan)

H. H. YUAN SHIH-K'AI
VICEROY OF CHIHLI
Organizer of China's Modern Army

A REVIEW OF THE RAILWAY SITUATION IN CHINA

With the laying of the first 26-pound rail at Shanghai on the Shanghai-Woosung Railway by Mrs. Morrison, wife of the engineer in charge of the work for the Woosung Road Company, on January 20th, 1876, was inaugurated under the most unfavorable conditions one of the most important eras in the history of China, and the rapid and satisfactory progress made, in opening up the country by means of the railroad, is one that evokes general admiration among those who have familiarized themselves with the many obstacles and prejudices overcome by the pioneers among foreigners and progressive Chinese, and the many natural difficulties to be surmounted. Today there are approximately 9,000 miles in all of lines constructed and in operation, under construction, or projected. Of this estimate there are approximately 3,600 miles in operation and tapping the most important commercial centers of the empire.

The Four Trunk Lines.—The most satisfactory division of the railways of China, for the purposes of this article, is that recently proposed by the Board of Posts and Communications

(*Continued on next page*)

THE FAR EASTERN REVIEW

GEO. BRONSON REA, M. E.
PUBLISHER

WILLIAM CROZIER, Editor.

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in their recommendations for the reorganization and centralization of the control of the entire system. For the purpose of centralization, Hankow and Hsian-fu have been respectively proposed as the point from which the system should be controlled. With this in view the Board recommended the division of the system into four trunk lines as follows:

Southern-Trunk.—The Peking-Hankow and the continuation of that line including the section between Hankow and Canton when completed throughout. The Peking-Hankow section is 753 miles in length and the Canton-Hankow section of this proposed trunk line is 750 miles long, making in all from Peking to Canton a distance to be traversed of 1503 miles.

Branch Lines of Southern Trunk Line.—A line from Changsintien, a point on the Peking-Hankow, 13 miles South from Peking to Fengtai, making connection with the present Imperial Railways of North China and proposed Eastern Trunk line. Fengtai is about five miles east of Lukouchiao, the original terminus selected for the Peking-Hankow road. Changsitien is a point two miles south of Lukouchiao on the Peking-Hankow line.

Liengsienhsien-Yuli Branch, nine miles in length to tap coal mines and quarries at the latter point. Liangsienhsien is a point on the Peking-Hankow line 20 miles South of Peking terminus.

Liuliho-Chowkowtien Branch, 10 miles in length and tapping coal, lime and stone. Liuliho is 39 miles from Peking on the line to Hankow.

Kaoyhsien-Liuchang Branch, 11 miles in length, tapping coal supply. Kaoyhsien is 203 miles south of Peking on the main line.

The Chengfai Line or Shikiachwang-Taiyuanfu Branch in Shansi province covering a distance of 150 miles. Shihkiachwang is about 15 kilometers south of Chengtingfu and the line is used principally for carrying coal from the Tsingking mines and coke. The continuation of this line from Taiyuanfu 100 miles south west to Pingyaohsien is projected with a view to continuing it to Hsianfu in Shensi province. Other branches proposed are: from Tatungfu, North Shansi to Kalgan, and from Puchowfu in southwest Shansi to Tungkwan in Shansi and from that point ultimately westward to Hsianfu. Another proposed line is from Pingyangfu to Tsehchow where it will connect with the Peking Syndicate road when the line is extended to that point.

Taokow-Tsinghwachen Railway is a Peking syndicate enterprise that connects with the Peking-Hankow at Singsiang about 320 miles south of Peking. It runs from Taokow on the river Wei from which point communication eastward is made with Tientsin by way of the Grand Canal. The length of the road is 93 miles and runs westward from Taokow crossing the Peking-Hankow line at Singsiang and proceeding west to Tsingwachen, a distance of 48 miles from Singsiang. The line will be extended from this point westward to Tsechowfu to connect with future Shansi lines. A branch about a mile and one-half in length makes connection with the Jamieson Mines worked by the Syndicate.

Kaifeng-Honanfu Railway, the entire length of which when completed will be 115 miles, runs from Kaifeng westward crossing the Peking-Hankow at Chenchow, 40 miles distant, and proceeds westward to Honanfu. This line will be extended to Hsianfu and may be completed and in operation this year. The country tapped is rich in minerals and agricultural products.

The Shantung Railways connect the German settlement at Tsingtau with Tsinanfu, a distance of 256 miles. The concession to the Germans provided for an extension from Tsinanfu to connect with the Peking-Hankow Railway at Chentingfu. With the withdrawal of the German garrison the concession for this section was resold to China. A branch of the Shantung railway of 1.4 meter gauge 27 miles in length connects Poshan and the Tsechuan mines with this railway at Changtien. A railway connecting Chefoo with Tsinanfu via Weihsien is being agitated, but so far without success.

Tientsin-Pukou or the Tsinpu Railway connecting Tientsin with Pukou, a point opposite Nanking on the Yangtze River, is now under construction. The northern division between Tientsin and Yihsien will be built by German capitalists and from Yihsien to Pukao by British capital. The two sections are 674 miles in length. It will connect with the Shanghai-Nanking Railway on the South and the present Imperial Railways of North China at Tientsin on the North while a projected line running west from Pukao is proposed to connect with the Peking-Hankow at Hsingyang, about 200 miles north of Hankow.

The Shanghai-Nanking or Houning Railway covers a distance of 193 miles and connects the terminus at Woosung Forts via Shanghai, Soochow, Wusieh, Changchow, Tanyang, and Chinkiang, with Nanking opposite the terminus of the Tsinpu line. This line may find connection with the Peking-Hankow as indicated in the previous paragraph. The entire line of the Shanghai-Nanking Railway was completed last March.

The Shanghai-Hangchow-Ningpo or the Hai-Hang-ning Railway, the agreement for the construction of which was recently signed between the British-Chinese Corporation, is the result of negotiations over what was known as the Soochow-Hangchow-Ningpo Railway concession. Demands had been made for its cancellation but finally the matter was satisfactorily adjusted. This line as projected will be 200 miles in length.

Kashing-Ningpo line or the Chekiang Railway: This will connect Kashing with Hangchow, and an extension is proposed from Hangchow to Shaoshingfu and Ningpo. Over 40 miles of the Kashing-Hangchow section is under construction and a short branch from Hangchow to Tsientangkiang has been in operation for some time. The line runs east of the Grand Canal towards Haning.

Kiangan or Hufong Railway.—Chinese opposition to British enterprise, runs from Tungkado terminus at Shanghai to Sunkiangfu and Kashing where it will connect with the Chekiang and Anhwei system. This line is under construction.

The Anhwei or Wu-Kwang Railway.—This line runs from Wuhu to Kashing by way of Siuenchanghsien and Kwangtechow to Kashing via Huchowfu. This is a Chinese enterprise also and construction is under way.

The Canton-Hankow or Yuch-Han division of this proposed trunk system when completed will be 750 miles in length. The construction has been greatly delayed for lack of organization on the part of the provinces of Kwantung, Hunan and Hupeh through which the line passes. The prospects for greater expedition are now much brighter. The branch lines are as follows:

Canton-Samshui line, 32 miles, completed by the American-China Development Co.

Chuchow-Pinghsiang line, 66 miles, constructed by Chinese, in 1906, connecting with the coal mines of Pinghsiang.

The Szechuan Railway or Chengtu-Hankow line, projected, some preliminary work done, 600 miles.

Canton-Kowloon line, which, when completed, will place Hongkong in a favorable position for the trade of South China, is 122 miles in length with the construction well under way on the British section which will be completed next year. There may be some delay on the Chinese section. This line is considered the most important under way.

Canton-Macao Railway, projected and concession granted to China-Portuguese Railway Co. in 1904. No work done and franchise agreement reported cancelled recently.

Canton-Amoy Railway, length of section under construction between Canton and Whampoa and from the latter point it has been surveyed to Amoy via Haifung, Lufung, Hwai-lai-hsien, Puning, a point near Kityang, Chao-chow-fu junction with the Swatow branch and then over the hills by way of Hwangkang and Cahoan to Amoy.

The Kiangsi or Nanhsiang Railway; Kiukiang to Nanchang, a distance of 100 miles, and a continuation to Shaochow is proposed.

The Fukien Railway or Amoy-Foochow, a proposed line connecting these two points by way of Changchow.

Foochow to Kwantow, a proposed branch along the Min River connecting these two points.

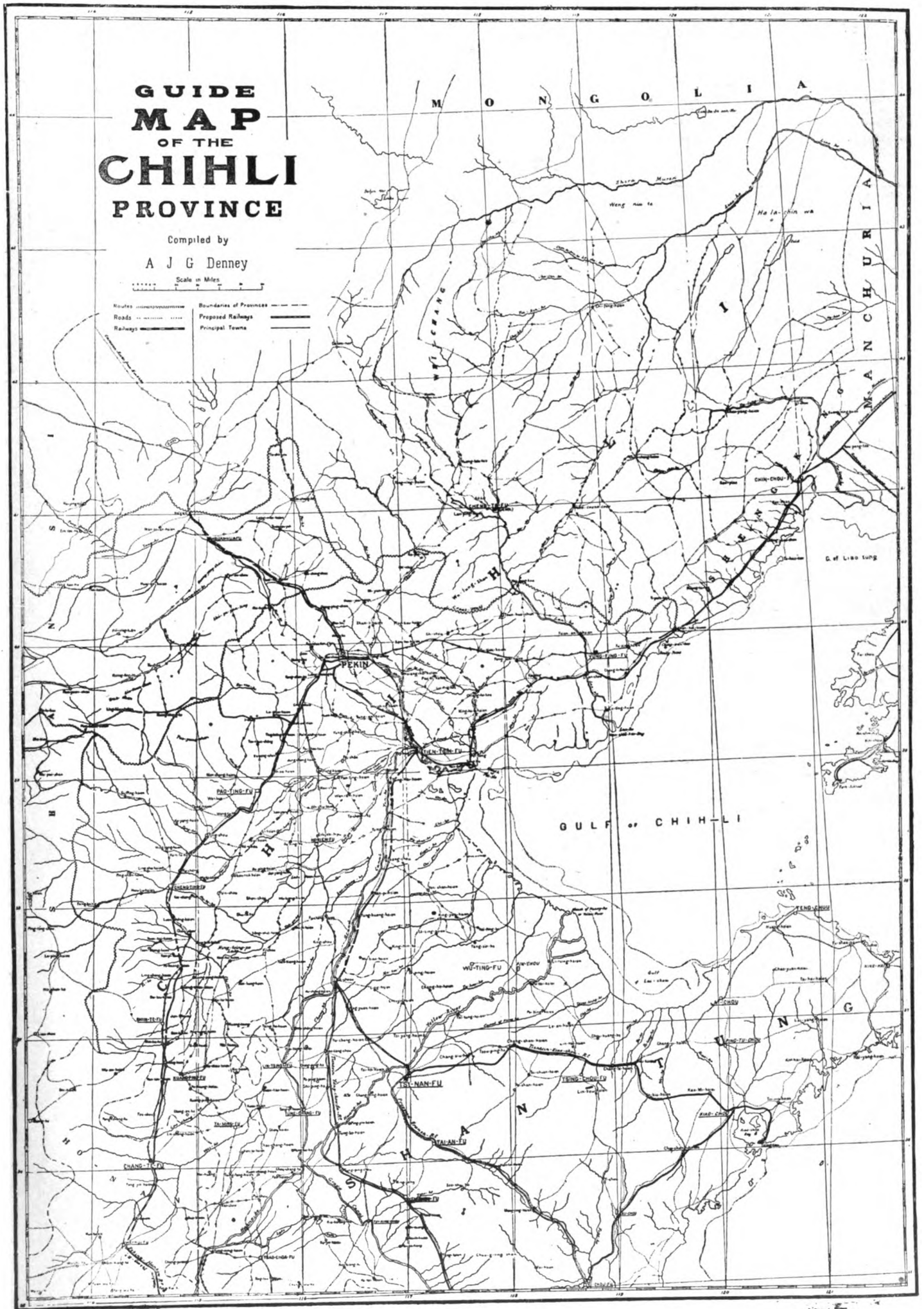
Changchow-Chaochow, a proposed road to connect the Fukien railways with the Canton-Amoy line.

Swatow-Chaochow branch, 24.5 miles, connecting these two points. This is a Chinese enterprise costing $1,500,000 and three trains run daily from each terminal.

Yunnan-Tongking Railway. This line is surveyed and under construction between Laokay and Yunnanfu, a distance of 291 miles, and will be completed under favorable circumstances by 1910. The section between Hokow and Tahati, a distance of 44 miles, was completed this year. The construction is through most difficult country, there being about 150 tunnels approximately 10 miles in all and a large number of bridges of long spans. It is proposed to continue the line from Yunnanfu to Chentu and from there to Chunking to connect with the Szechuan Railway.

Langson-Lungchow-Nanning-Pakhoi Railway. The first extension from Langson to Lungchow

(*Continued on page 104.*)

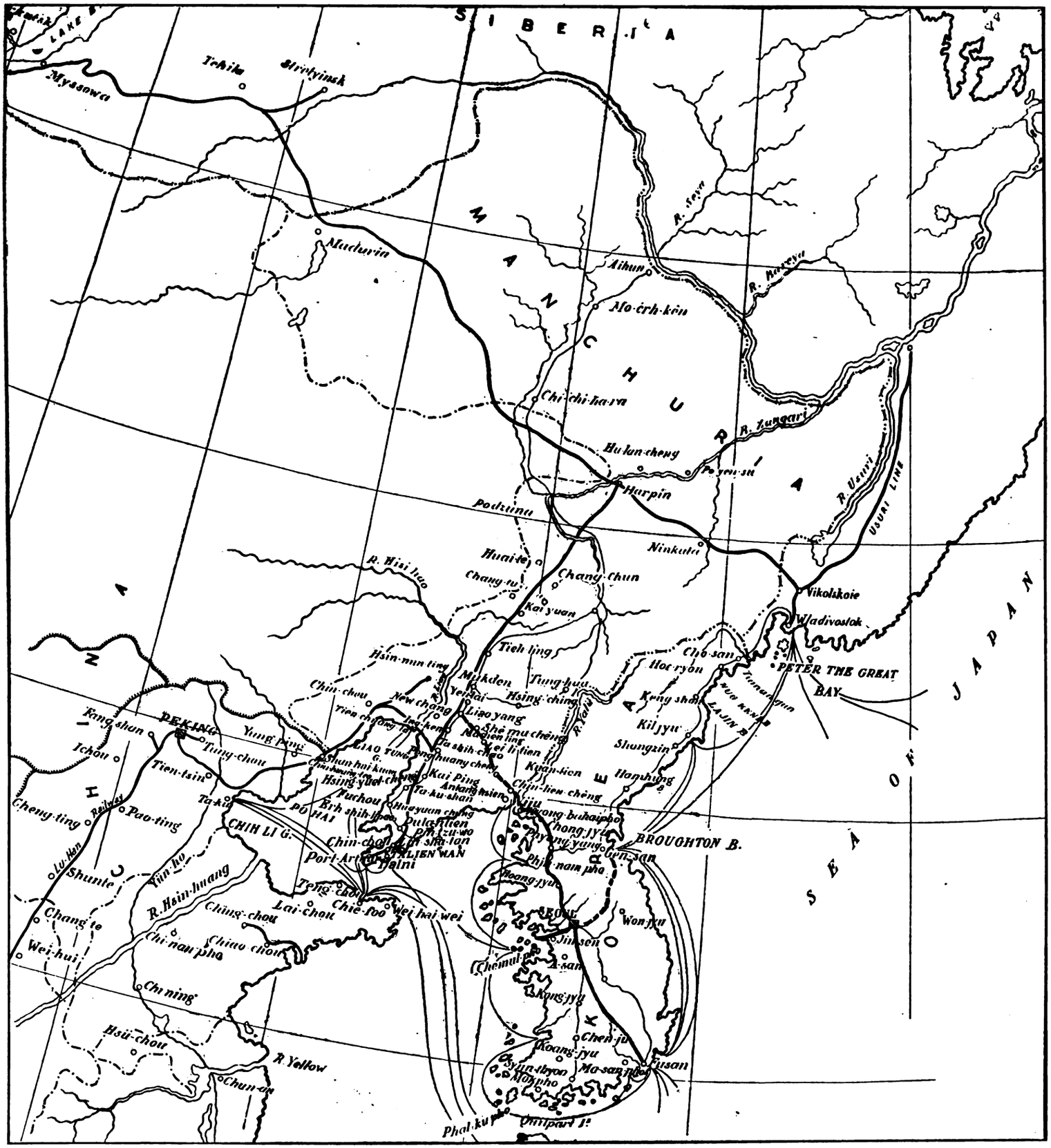

GUIDE
MAP
OF THE
CHIHLI
PROVINCE
Compiled by
A J G Denney
Scale in Miles
Routes
Roads
Railways
Boundaries of Provinces
Proposed Railways
Principal Towns
MONGOLIA
MANCHURIA
PEKIN
TIEN-TSIN-FU
PAO-TING-FU
TSI-NAN-FU
TAI-AN-FU
WU-TING-FU
TSING-CHOU-FU
CHIN-CHOU-FU
TENG-CHOU
GULF OF CHIH-LI
G. of Liao tung

was conceded to the Fives-Lilles Company in 1895. This projected line is 220 miles in length, and the extension to Nanning from Lungchow and from Nanning to Pakhoi is proposed. There is also a proposed extension from Nanning to Wuchang and a number of short branches radiating from Wuchow would connect Canton, Kweilin, Kwangchow, etc.

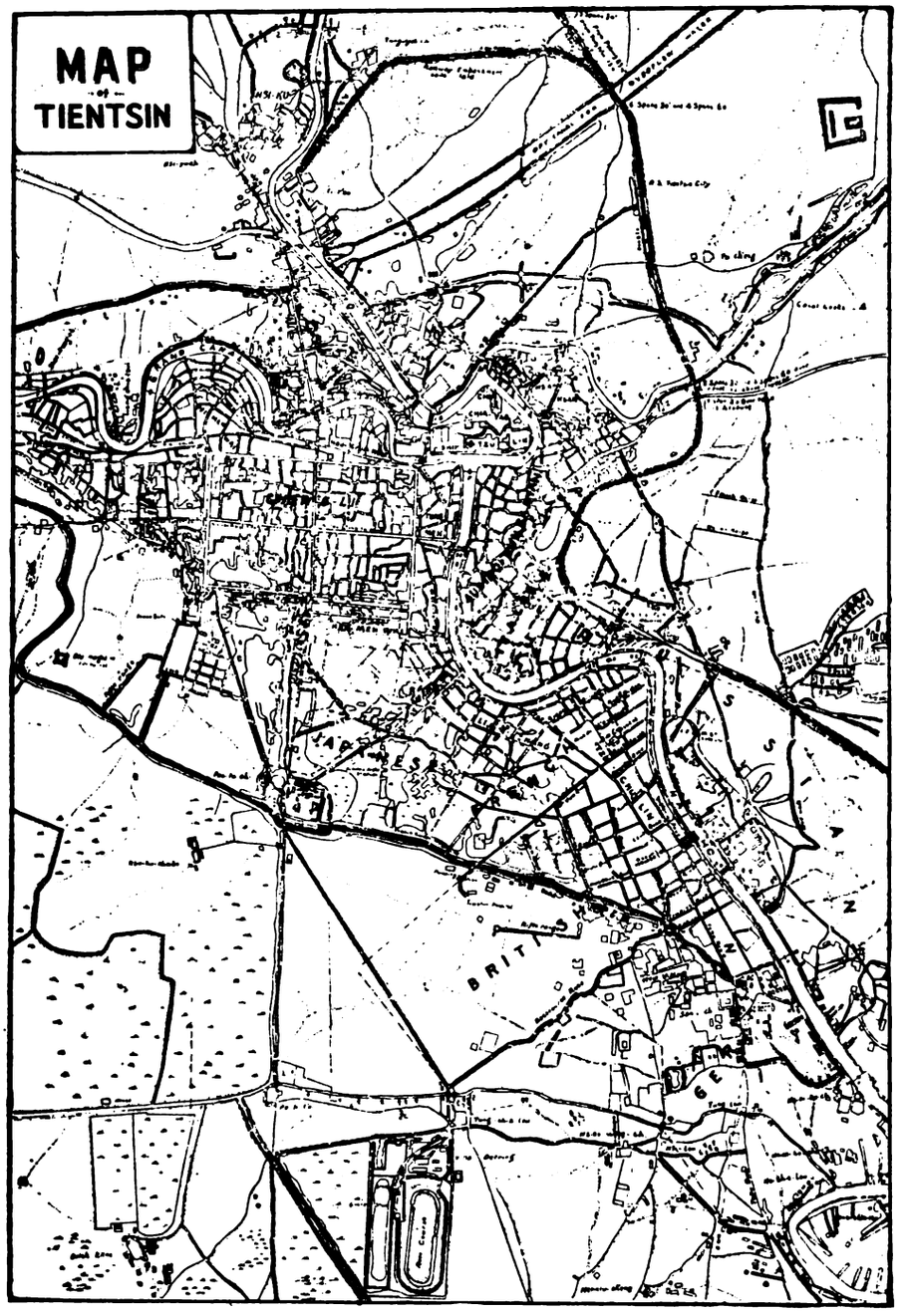
Sunning or Ningyueung Railway.—This is a fifty mile line in operation connecting Kungyifou via Sunning with Samkahoi 5 miles east of the coast port of Kwonghai in Kwangtung province. A Chinese enterprise.

Bhamo-Tengyueh Line (*Yunnan*). This proposed line is narrow gauge about 150 miles in length connecting Bhamo, in Burma, with Tengyueh in Yunnan. It is also proposed to continue this line to Talifu, and from there to Yunnanfu and thence northward to connect with the Szechuan Railway at Chengtufu or Chungking.

Northern Trunk Line.—This division of the entire system for the purpose of this article makes the Peking-Kalgan Ry the first section of the trunk line, and its projected extension to Kulun (Urga) and Kiachta. The total length of the section to Kalgan is about 130 miles and is expected to be completed by the end of 1909. The first section from Chatao two miles east of Fengtai where it connects with the Imperial Railways of North China to Nankow, a distance of 33 miles, was opened to traffic in September 1906. The construction



NORTH CHINA, MANCHURIA AND KOREA RAILWAY MAP. REPRINTED FROM THE FAR EASTERN REVIEW

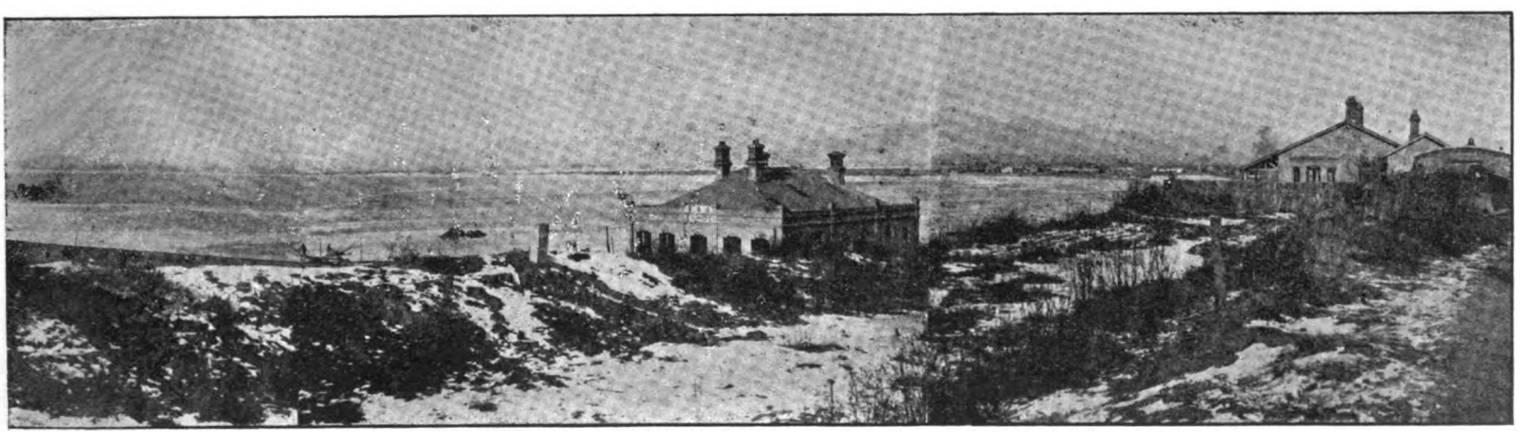


MAP OF TIENTSIN: SHOWING RAILWAY ENTRANCE

work on the balance of the road is most difficult and much tunneling is necessary. The 14-mile section from Nankow to Chatao require four large tunnels which are well under way while the line from Chatao to Kalgan has been surveyed and construction commenced.

The branches of this proposed Northern Trunk line have been but vaguely suggested, one connecting Kalgan and Jehol to the East about 200 miles, and another to the West a distance of 150 miles to Suiyuan (Kukukoti), also one connecting Tatungfu in North Shansi with Kalgan. And when the proposed extension to Kulun (Urga), a distance approximately of over 700 miles, is effected it will be divided into two sections, viz., Outer and Inner Mongolia, and all the future lines in Mongolia and Jehol will be included in this division.

The Eastern Trunk.—This division includes the Imperial Railways of North China or the Peking-Mukden line commencing at Peking and proceeding by way of Tientsin, Tongku, Shanhaikwan, Chinchowfu, Kowpangtze, Kiuliuho, Hsinmingfin and Mukden in all 521 miles n length. This line has a standard gauge of 4 ft. 8.5 in. The principal branches include the line from Peking to Tungchow, a distance of 15 miles; a branch from Kowpangtze to Yingkow (Newchwang), a distance of 59 miles; from Chingwantao to Tangho 6 miles; from Kaopetien on the Peking-Hankow line to Siling, the Western Tombs. This line is 25 miles in length and is used exclusively by the Imperial family. As previously stated the connection between the Peking-Mukden and the Peking-Hankow is made by a branch to a Changsitien from Fengtai. The South Manchurian Railway which runs north from Dalny to Changchun, a distance of 460 miles, connects at Mukden with the Eastern Trunk. The Chinese Eastern Railway, the main line of which runs for about 950 miles in Chinese territory from the border of Manchuria to Vladivostock, and the branch running South to Kwanchengtze, a distance of about 130 miles, connecting with the South Manchurian line at Changchun, thus making connection with the Eastern Trunk at Mukden. The Russians who control the Chinese Eastern and the Japanese who control the South Manchurian Railway still maintain two distinct termini and each company has a line of its own making connections between Kwanchengtze and Changchung, a distance of 5 miles. The Russian line has a gauge of five feet and the original narrow gauge of the South Manchuria has been widened to standard gauge. The feeders for the South Manchurian line include a branch from Nankwanling to Port Arthur, a distance of 29.5 miles; from Liushutun to Tafangshen, 3.5 miles; Tashihkiao to Yingkow (Newchwang) but does not connect with the Eastern Trunk, the terminus being on the opposite bank of the river from the Chinese station; Yentai-Taiking, 9.75 miles; Suchiatun-Fushun, 37.25 miles, and several short spurs to the mines; Narrow gauge line, 2 ft. 6 in., from Mukden to Antung, 186 miles, leased by Japan 1905 for 18 years and connects with the Korean terminus across the Yalu. The distance by

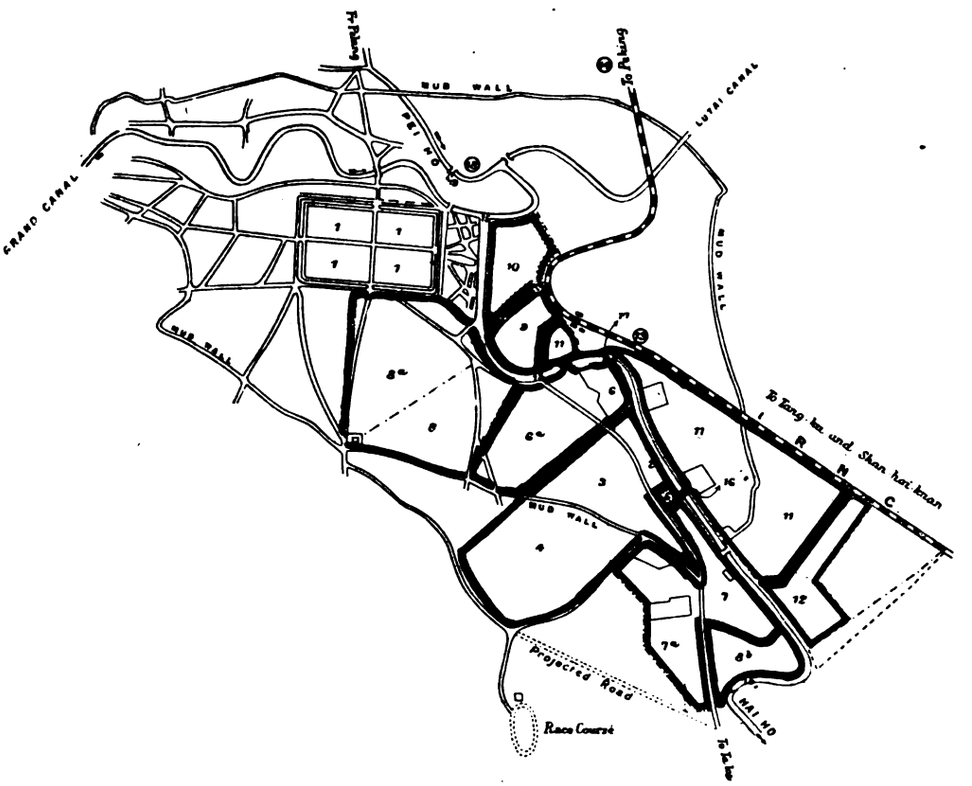


PORT OF CHINGWANGTAO OF THE CHINESE ENGINEERRING AND MINING COMPANY

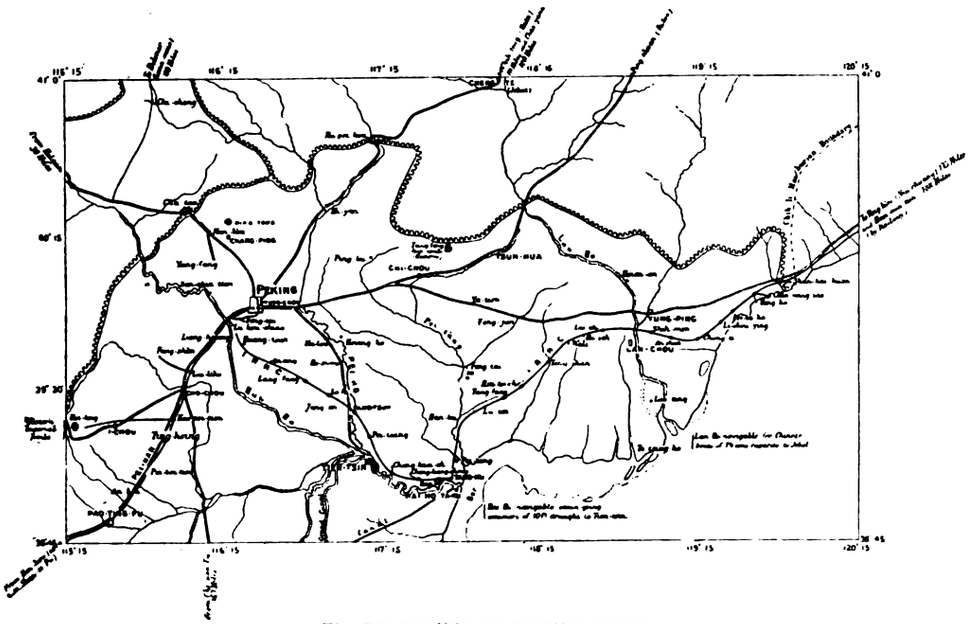
PORT OF CHINGWANGTAO, OF THE CHINESE ENGINEERING AND MINING COMPANY

rail on the South Manchurian Railway lines from Dalny to Kwangchetze is 465 miles and from Yingkow to Kwangchengtze, 330 miles. There are several projected lines in Manchuria among which are the Fakumen Railway and a line connecting Kirin with Changchun. This latter has the approval of the Chinese authorities and latest reports have it that Tls. 3,000,000 have been subscribed to carry out the work of construction. It may be built jointly by Japanese and Chinese capital and the survey is under way. The proposed Fakumen Railway which would connect Hsinmintun and Fakumen is objected to by the Japanese on the ground that it would compete seriously with the South Manchurian line. The matter is still unsettled.

Western Trunk Line.—This proposed trunk line in its relation to the other divisions into which China's Railways may be divided comprises the line connecting Chentingfu and Taiyunfu and joined with the proposed Tungpu railway; extended westward together with the proposed line between Tunkwan and Lanchow in Kansu province, and from there westward a proposed line to Ili in Turkestan. While this is as yet on paper and will take years to realize, it is the proposed Western Trunk line. The branches which will ultimately feed this proposed trunk road will commence at Taiyunfu, where a line from Tatung would tap the proposed Kalgan-Suiyan line; at Pingyang, a line to Tsechow to tap the Peking Syndicate line; at Tungkuan, a line to Loyang to connect with the Loyang-Honan Railway; from Lanchow tapping the lines converging at Hsianfu, including a line connecting Chengtu via Hanchung with Hsianfu and forming a connecting link with the Szechuan Railway and the British



MAP OF TIENTSIN

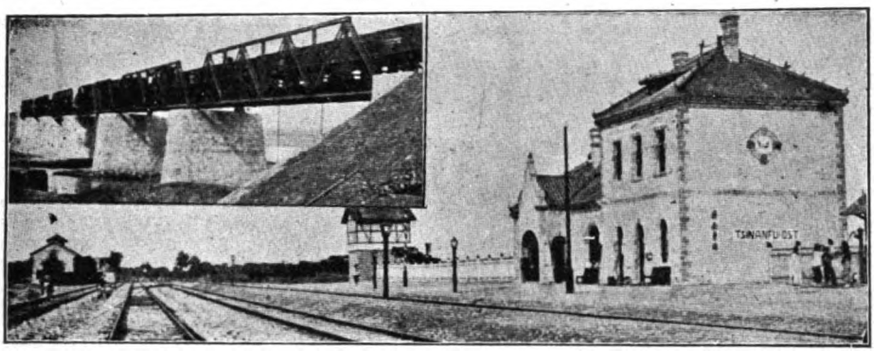


TRADE ROUTES IN NORTH CHINA

and French extensions to the south. On the West at Lanchow, lines to Tsingkai (Kokonor) Tibet and Ili in Chinese Turkestan are proposed as branch lines.

It may easily be concluded from the foregoing résumé of the different systems of railways in operation, lines being constructed or projected and the many suggested railways, designed to open up the country, that, for the present, no other branch of enterprise is engaging the attention of the Chinese Government or the Chinese people to a greater degree, and that the development of the resources of the empire will surely be measured by the progress made.

Throughout the entire history of railways in China there has been a marked conservatism on the part of the Chinese government. At first, a strong prejudice prevailed against the introduction of western ideas and western transportation methods did not escape. This prejudice has been gradually overcome and in its stead, there is a well defined national policy that has for its purpose the control by China of all its railways and, ultimately, their nationalization. The advantages of the railroad are now recognized and from almost every section of the country petitions for concessions are forwarded continually by Chinese companies to Peking. One marked feature of the policy of the Peking government is its purpose to

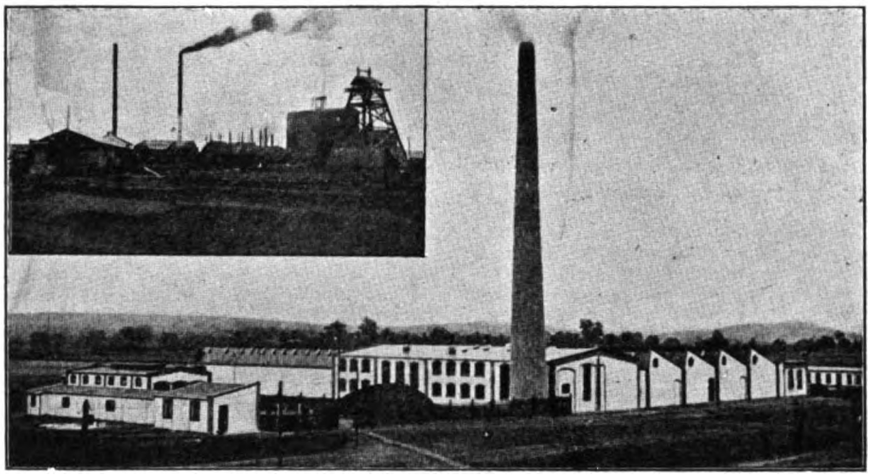


BRIDGE ON THE SHANTUNG RAILROAD, BUILT UNDER GERMAN CONCESSION, ABOUT 35 MILES FROM TSINGTAU; A TYPICAL WAY-STATION ON THE LINE

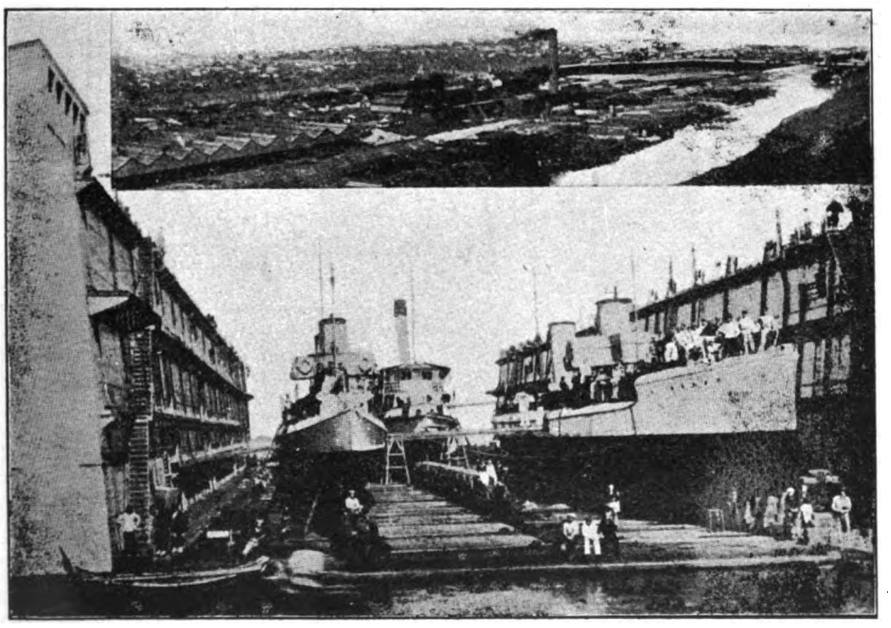
repurchase foreign concessions or to so provide in all agreements that the control should remain with the Chinese government or revert to it ultimately. There is also a movement favoring the construction and operation of the lines by Chinese engineers. In this connection it might be said that during the last two decades many young Chinese have taken engineering courses in American and European colleges and, in several instances, railroad construction has been carried on under the direction of these graduates with marked success. However, the best general results may be traced to the foreign engineers who have made a life study of railroad building and of conditions in China, co-operating with Chinese engineers and receiving the moral support of the Chinese government and the Chinese people.

When the first Woosung-Shanghai line was closed upon its repurchase by China in 1877, the prospect for railroad construction in China was not encouraging. The closing chapter of this enterprise points to the tearing up of the track with the shipment of the rolling stock, etc., etc., to Formosa and the erection, on the site of the Shanghai terminus, of a temple to the Queen of Heaven. The policy at this time was to keep foreigners at arm's length at all costs.

It was not until 1878 that any successful attempt was made to introduce the railroad. It came finally with the assistance of Director General Tong King Sing of the China Merchants Steam Navigation Company and Li Hung Chang, Viceroy of Chihli. The former was interested in securing a coal supply and the latter, while previously opposed to the Shanghai-Woosung line, became interested with Tong King Sing in establishing collieries in the Kaiping district in Chihli and, between them and their friends, the Chinese Engineering and Mining Company was formed. The first shaft was sunk at Tongshan in 1878. From this point to Pehtang the nearest port available was about 30 miles. The question of transportation became vital to the success of the company and even to Viceroy Li Hung Chang the railroad now appealed strongly. After some delay a railway was sanctioned by the Peking authorities and Mr. C. W. Kinder was appointed resident engineer in charge of construction. Suddenly for some reason the approval of this line was withdrawn.



COAL MINE AT WEIHIEN: A GERMAN SILK FACTORY NEAR TSINGTAU



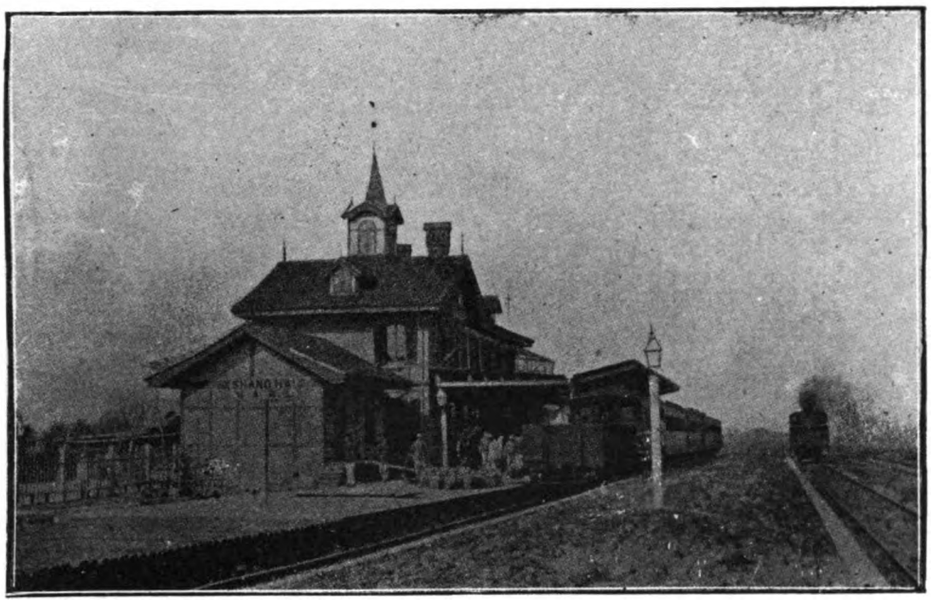
VICEROY'S ARSENAL AT HANVANG: FLOATING DOCK IN THE HARBOR OF TSINGTAU

The company, failing to secure reconsideration, proceeded to construct a canal from the colliery to Lutai, the nearest point on the Pehtang River. There were seven miles between the end of the possible canal and the colliery, and to cover this distance the Imperial authorities were induced to permit the construction of a tramway of standard gauge with the proviso, that mules only would be used for motive power. The standard gauge for this mule tramway was secured only after a hard fight by the resident engineer and in 1880 the line was completed, and the first permanent step taken in introducing the railway in China.

Mr. Kinder did not propose to depend upon mules for his tramway for lack of persistence. He had succeeded in his fight for a standard gauge and he was encouraged to fight for a locomotive. Without consulting Peking, he proceeded to build a locomotive out of a portable winding engine and old iron picked up at the mines. It was not a fancy production but it served the purpose. Its cost was approximately 500 Mexican pesos and it was christened "The Rocket of China" on June 9th, 1881, by Mrs. Burnett, wife of the Engineer-in-chief of the company. As soon as Peking heard of this monster being substituted for the mules, an order was received prohibiting its use. It took some weeks to induce the authorities to withdraw their objection, but this was finally accomplished and "The Rocket" went into commission on construction work. This was the thin edge of the wedge that made for the general introduction, slowly but surely, of railways into China, and it is of interest to note that the successs of this initial venture was entirely due to the recognition by Viceroy Li Hung Chang and Tong King Sing of the advantages of the railway for transportation purposes in opening up the rich coal deposits of Kaiping and especially so in view of the fact that each of these enterprising Chinese were personally interested in the success of the mining venture.

This initial railroad venture from the Mines to Hsukochuang was a success and two additional locomotives were secured in 1882. But Mr. Kinder saw his opportunity to extend the line. He succeeded Mr. Burnett as Engineer-in-chief in 1882 and at once began to urge the extension of the tramway to Lutai and succeeded with the assistance of Viceroy Li Hung Chang, now impressed with the value of the railroad. The Kaiping Railway Company was formed with a capital of $250,000 to take over the tramway and carry out the construction of the extension. A Chinese member of the British bar named Wu Ting Fang was given the management of the company and work was begun at the Hsukochuang end in 1886 and six months later it was completed and rolling stock, including an American locomotive and forty ten ton coal cars, purchased.

Then Viceroy Li Hung Chang became the champion of railway extension in earnest and



CHINESE IMPERIAL RAILWAYS: SHANGHAI-NANKING LINE—THE STATION AT SHANGHAI

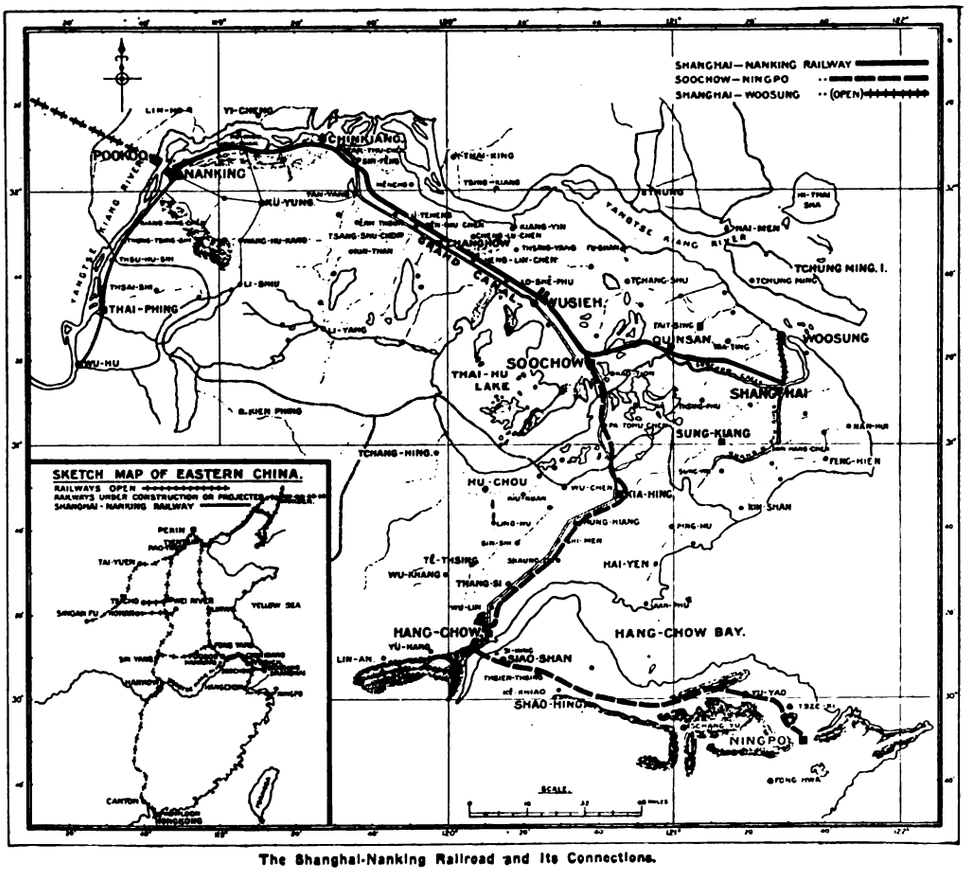
by the time this line was completed to Lutai, the viceroy had a memorial before the Imperial authorities urging the extension of the line to Tonghu and on to Tientsin on the grounds that such a road was a military necessity and would tend to the better protection of the empire from invasion. This fortunately struck the right chord and the scheme was approved and directed executed. The name of the company was changed to the China Railway Company and a prospectus issued asking for subscriptions of Tls. 1,000,000, the Hongkong and Shanghai Banking Corporation being made bankers. This prospectus was endorsed by the Viceroy, but notwithstanding this influence it was with great difficulties that the promotors financiered the scheme. The section to Tongku was completed in April 1888; in August, Tientsin was reached; in October the viceroy inspected the entire line, and in November two trains passed daily between Tongshan. The item of cost of construction of this line was exceeding low. It averaged about £5,000 a mile.

Permission was then asked to extend the railway from Tientsin to Tungchow, a point about 12 miles east of Peking as well as to extend the line eastward to Shanhaikwan. This roused the reactionary party at the capital who opposed the Tungchow extension on the ground that it would expose the capital to foreign attack. This fight against the extension was carried to extremes and resulted not only in blocking the decree but by inciting the junk owners to the extent that the bridge over the Peiho at Tientsin, then being constructed to connect the foreign settlements with South Tientsin, was directed destroyed by the viceroy to quiet the people. But the extension to the east were completed to Kuyeh in 1890. In 1891 the extension to Shanhaikwan was authorized and the Chinese Imperial Administration was formed with Mr. Kinder, Engineer-in-chief, to carry on the work which was completed in 1894.

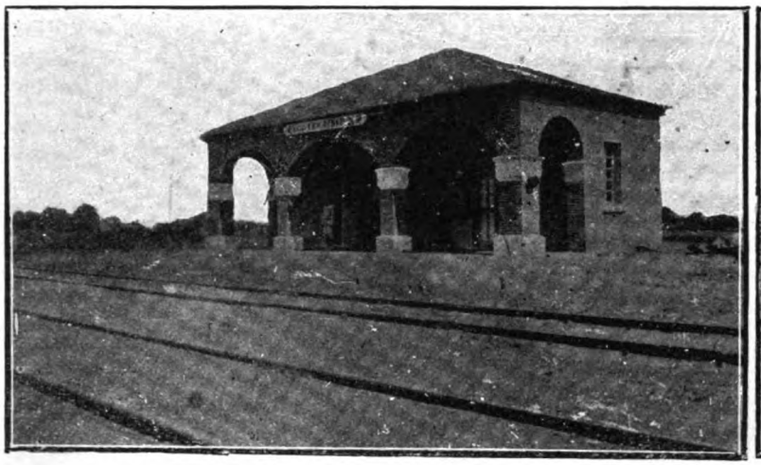
In the meantime permission had been granted to continue the railway to beyond the great wall, and in 1894, at the outbreak of the war with Japan, the line had been constructed to 40 miles beyond Shanhaikwan. The following year the war was concluded by the treaty of Shimonoseki at which His Excellency Li Hung Chang represented China. Upon his return he took up the matter of the Tungchow extension, the sanction for which had been withdrawn in 1888, with the result that it was renewed with a change of terminus to Lukouchiao and construction began in 1895. The line however was not built to Lukouchiao, but to Fengtai and from there later to Machiapu. This change was made without authorization, but was accepted by the Chinese apparently without protest.

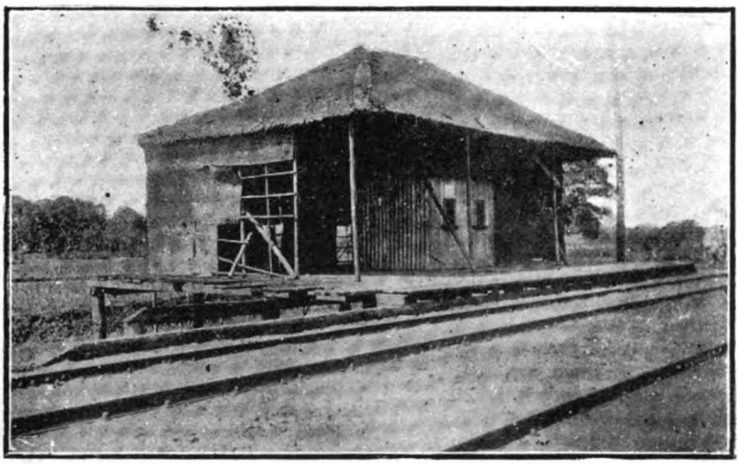
In the meantime the line of the China Railway Company from Tientsin to Kuyeh was taken over by the Imperial Railway Administration and the shareholders of the company were reimbursed for their script by government bonds bearing five per cent. Up to this time the liabilities of the Imperial Railway Administration was Tls. 2,540,000 divided as follows:

Hongkong-Shanghai Banking Corporation advances, Tls. 1,240,000; due the Russo-Chinese Bank, Tls. 600,000, and due the Deutsche-



The Shanghai-Nanking Railroad and its Connections.

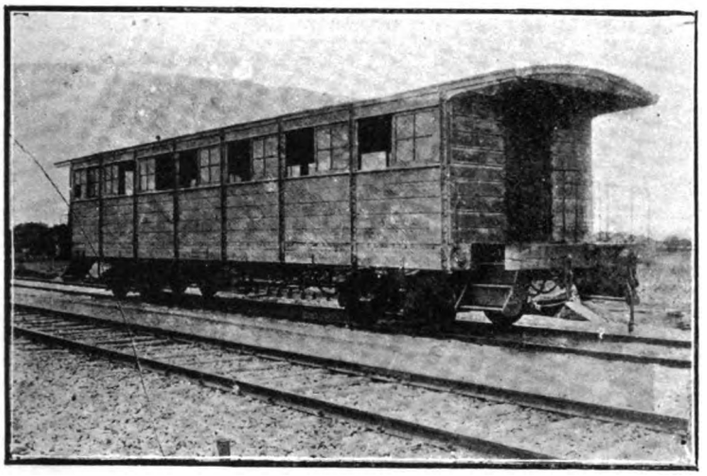


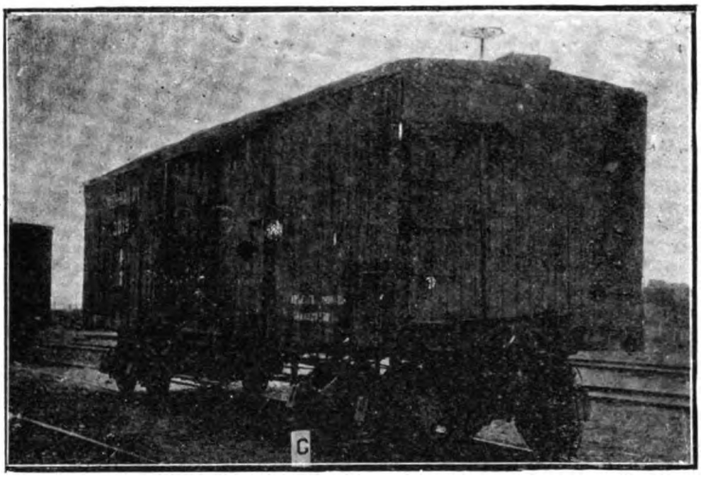


IMPERIAL CHINESE RAILWAYS.—CANTON-HANKOW LINE

STANDARD THIRD CLASS STATION BUILT BY CHINESE — STATION BUILT BY THE AM.-CHINA DEVELOPMENT CO.

Asiatische Bank, Tls. 700,000. To take up these liabilities and carry on the extension to Hsinminting, it became necessary to float a loan, and for this purpose Hu Yen Min, the governor of Peking and Director General of the Chinese Imperial Railway Administration, to Hsinminting, and a branch line to Yingkow, and for the redemption of previous loans to the Tientsin-Shanhaikwan and Tientsin-Lukouchiao lines." Then followed a Russian protest on the ground that it interfered with Russian rights in Manchuria. The Russo-Chinese Bank by which Russia agreed not to seek railway concessions in the Yangtze valley. The reference to the construction of the line to Hsinmingting provided that it should be built by China and that European engineers be allowed to inspect the work. The loan agreement

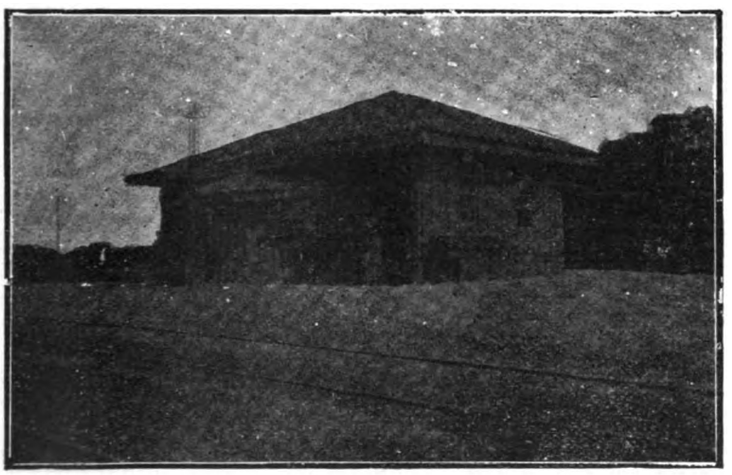


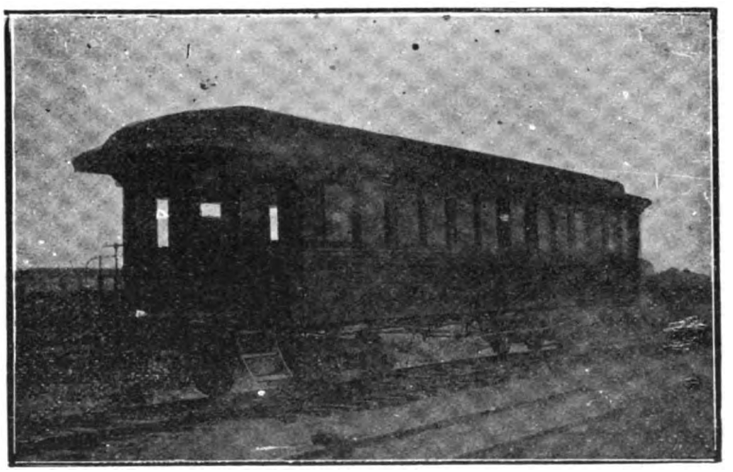


IMPERIAL CHINESE RAILWAYS.—CANTON-HANKOW LINE

OLD SECOND CLASS CAR NOW USED AS THIRD CLASS — A BOX CAR

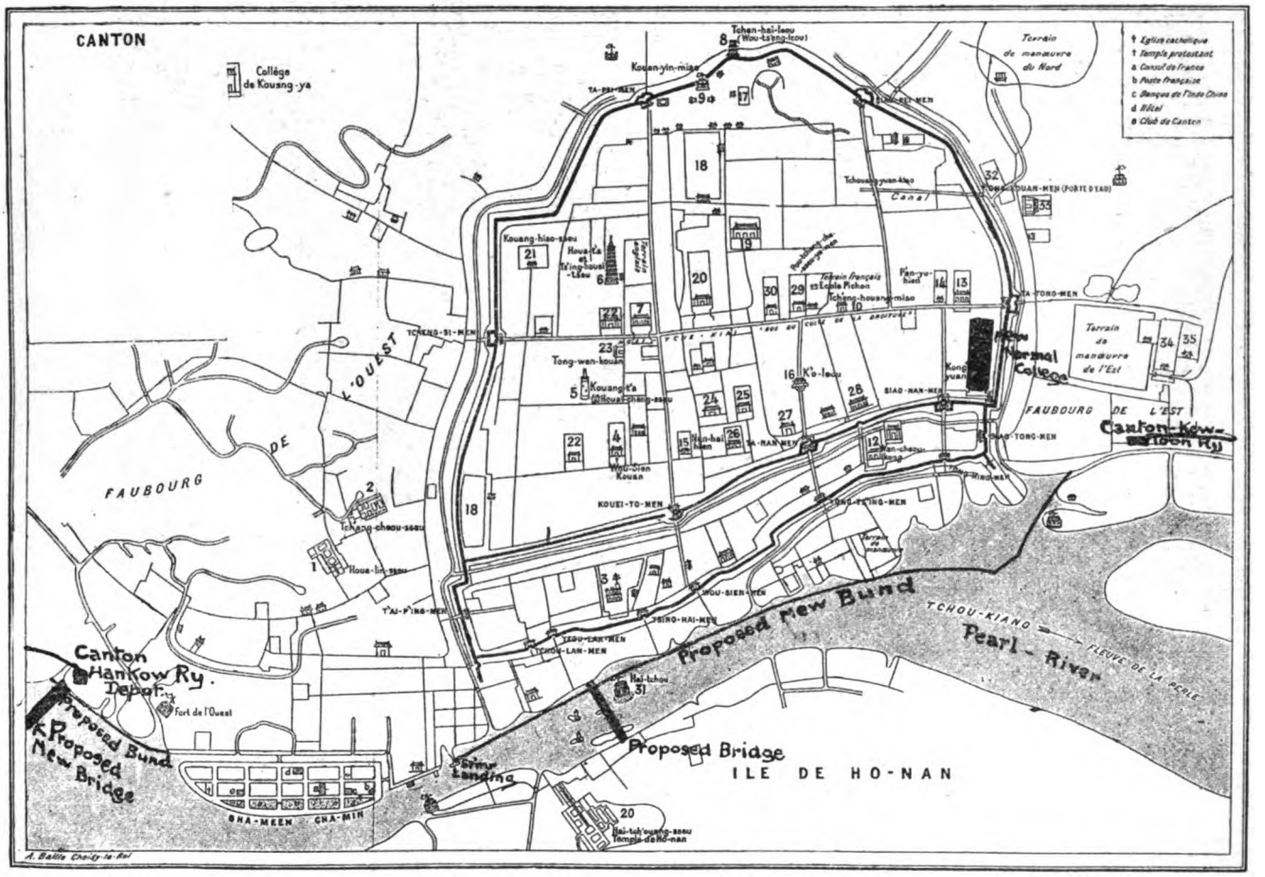
with the British and Chinese Corporation, a Syndicate formed by the Hongkong and Shanghai Corporation and the firm of Messrs. Jardine, Matheson & Co., and a loan for Tls. 16,000,000 to be used as implied in the contract: "For the construction of a railway line from Chunghousa entered into competition to handle the loan on more favorable conditions. Finally the matter was adjusted and an understanding arrived at by which Russia was practically recognized as having the right to extend her railway interests to South-Western Manchuria and was, however, signed June 15th, 1898, and construction commenced in the autumn of the same year. After overcoming many difficulties the line was extended to a point 30 miles beyond Yingkow by February 1900. From Kaopangtzu the line was then extended





IMPERIAL CHINESE RAILWAYS: CANTON-HANKOW LINE

FIVE RYE BRIDGE STATION — A FIRST CLASS COACH



MAP OF CANTON

further for 20 miles when the Boxer troubles intervened.

In the meantime, Hu Yen Mei was succeeded by Chang Yen Mao. The latter was not in sympathy with Engineer-in-Chief Kinder and not a few attempts were made to have Mr. Kinder removed, but without success, and it must have been gratifying to this successful and enterprising engineer and railway pioneer that his services were recognized by his sovereign at this time and as a mark of Her Majesty's esteem created a Companion of the Order of St. Michael and St. George.

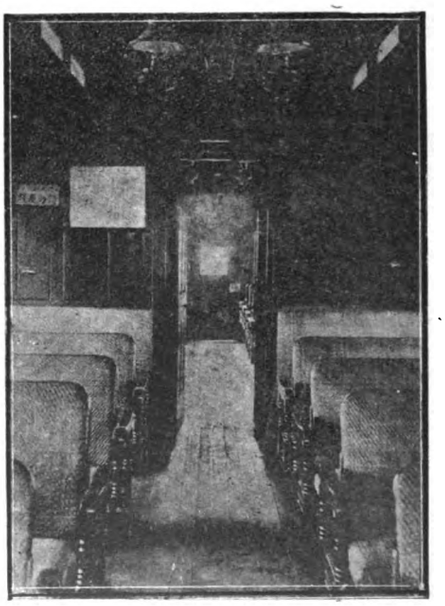
The boxer troubles interfered greatly with the program under way and the invasion of the allies for a time threatened international complications over the line. The council of the allied admirals gave over the control of the Tientsin-Tonghu section to the Russians. The latter later assumed control of the Tientsin Yangtsun section but found the British established at Fengtai. The strained relations between the British and Russians was somewhat accentuated by the proposal of Count von Waldersee to give the Russians the supervision of the Yangtsun-Shanhaikwan section and the German military to take charge of the Peking-Yangtsun. The British landed at Shanhaikwan in September, and in October a Russian force arrived and claimed the line from Newchwang to Tonghu by right of conquest. Count Waldersee's order was revoked soon afterwards and by January, 1901, an agreement was arrived at by the different powers whereby the Russians retired and the Peking-Shanhaikwan section was turned over to the British the latter part of February. In March there were more conflicts of interests in Tientsin, but a clash was avoided and while the differences were engaging the British and Russian governments the British Railway Administration was busy repairing the line. In August, 1902, the provisional military government in Tientsin retired and Viceroy Yuan Shih Kai took charge and it was not until October, 1902, that the British Administration assumed charge of the Shanhaikwan-Newchwang section to be turned over later to the Chinese Imperial Railway Administration. During the period that the British Administration was in control a twelve mile branch was built to Tungchow at a cost of £30,000.

With the renewal of active construction after the Boxer troubles the line was completed to Hsinminting in the latter part of 1903. An estimate of the cost and equipment of this line, a distance of 588 miles in all, is placed at about $40,000 gold a mile. The net revenue for this line has given a return of 4.75% on capital invested, for 1903; 7% for 1904; 20.75% for 1905 and 18.25 for 1906.

The connection between Hsinminting and Mukden is a narrow gauge built by the Japanese during the Russian-Japanese war and taken over in 1907 by purchase by the Imperial Railway Administration.

The building of the six mile branch from Tangho on the Peking-Sanhaikwan line to Chinwangtao, a few miles to the South of Shanghaikwan, was another addition to the facilities of the line as a result of the Boxer troubles. Chinwangtao is an ice free port and much of the supplies for the allies was landed there. In 1901 when the Chinese Engineering and Mining Co., Limited, was organized under British law and took over the holdings of the old company, by arrangement with the Admiral in command, this company took the railway over. Since that time it has been

CANTON-HANKOW LINE.—QUARTERS OF THE SUPERINTENDENT, MR. J. LIND.



CANTON-HANKOW LINE.—INTERIOR OF FIRST CLASS COACH

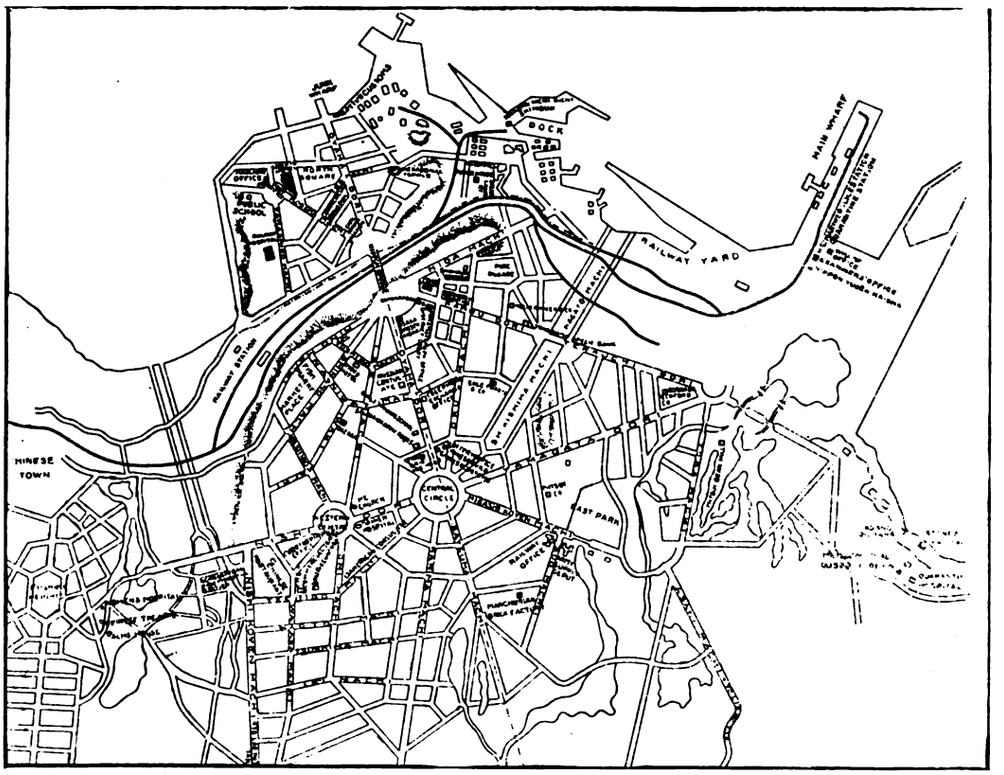
(*Mee Cheung, Photographer.*) KOWLOON-CANTON RAILWAY, BRITISH SECTION

THE ENGINEERING STAFF

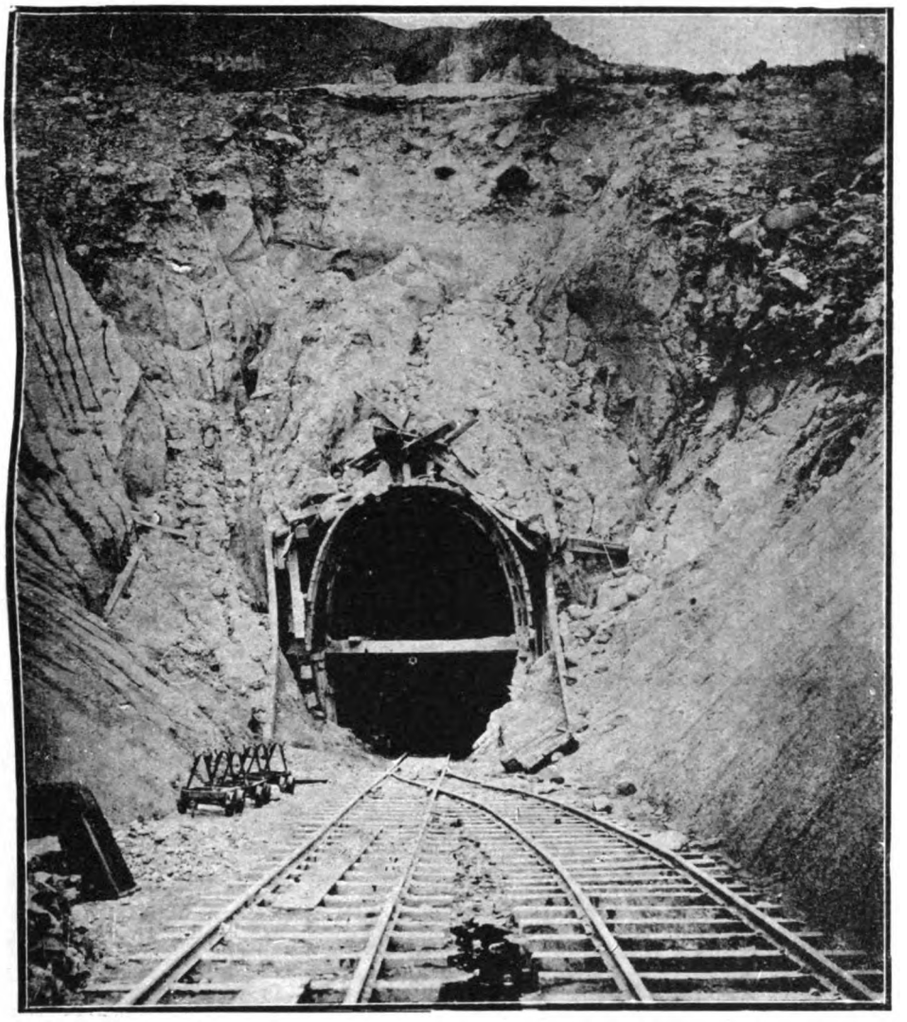
greatly improved and the port facilities enlarged at a cost of £220,000.

The Chinese Eastern Railway.—The agreement between the Chinese Government and the Russo-Chinese Bank for the construction and management of the Chinese Eastern Railway Company was signed September 8th, 1896. The company was to be organized with a capital of 5,000,000 roubles, to be subscribed to by Russian and Chinese subjects exclusively. It also provided for the survey of the line through Manchuria towards Vladivostock covering a distance of about 950 miles in Chinese territory and its construction. The gauge provided for was five feet. The line was to be the property of the company for 80 years upon the expiration of which time it reverted without cost to China. It also provided for the repurchase of the line in 36 years after it was put in operation at a price representing the cost of the line and interest. It further provided that upon the opening of the line for traffic the company would pay the Chinese Government the sum of Tls. 5,000,000.

In the spring of 1897, work of construction was started and the same year the city of Harbin was founded and made the headquarters



MAP OF TAIREN (DALNY)



(*Mee Cheung, Photographer.*)

KOWLOON-CANTON RAILWAY, BRITISH SECTION

ENTRANCE TO BEACON HILL TUNNEL

of construction. The following year, Russia secured a lease from the Chinese Government of the Liaotung peninsula extending over a period of 25 years and with it, a concession to the Manchurian Railway Company to construct a southern line from Harbin to Port Arthur of five foot gauge. The construction of the line was pushed rapidly and by the date of the Boxer outbreak, with the exception of a number of bridges it was practically completed. During this trouble much of the line was destroyed and especially between Harbin and Port Arthur. The work was, however, renewed with vigor and in the fall of 1901 the entire Chinese Eastern Railway connecting the Trans-Siberia with Vladivostock across Manchuria and the line south from Harbin to Port Arthur was completed. This system in Manchuria in all measured about 1,600 miles.

The war between Russia and Japan broke out in 1904 and the Japanese early seized the line to a point above Mukden. By the Portsmouth Treaty in 1905 the control of the line from Port Arthur to Kwangchengtze passed to the Japanese. The gauge was reduced by Japan during the war to a narrow gauge to suit the Japanese equipment and a light railway was constructed between Mukden and Antung for military purposes.

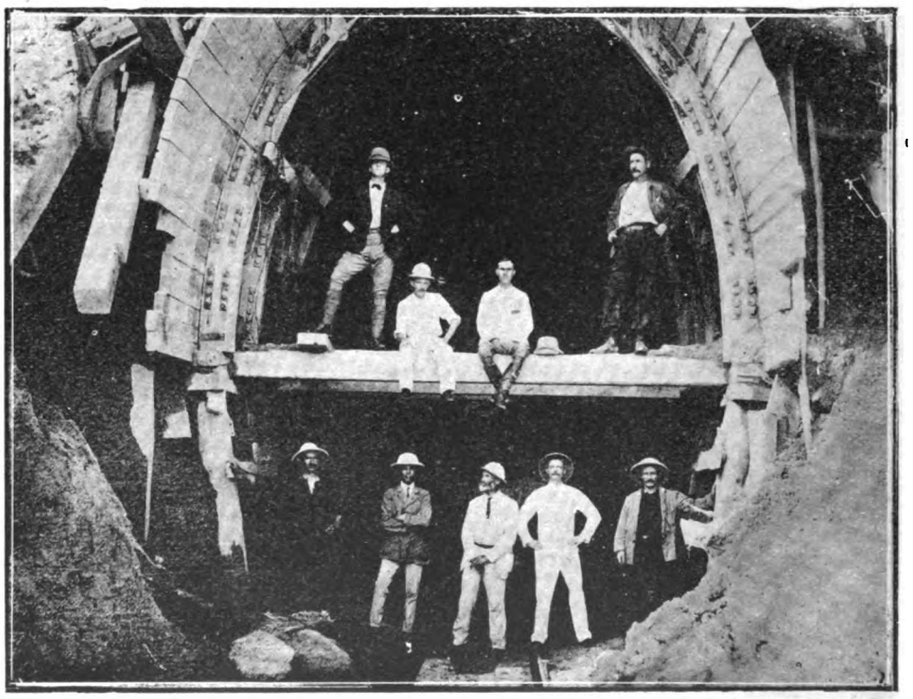
With the transfer of the railway to Japan preliminary agreements were entered into for the construction of a branch from Kwangchentze to Kirin by Japanese and Chinese capital; for the transfer of the Mukden-Antung line and providing for its construction as a standard gauge. The Mukden-Antung concession extends over a period of 18 years when it reverts to China upon payment of a price decided by arbitration.

To carry out the substantial program outlined, the South Manchurian Railway was organized with a capital of Yen 200,000,000 to take over the interests of the Japanese government and improve the property. A loan was floated to equip the line with rolling stock and widen the military narrow gauge to a standard gauge, and to double track between Dalny (Tairen) and Suchatun, a distance of 235 miles. All this work has been practically accomplished and a splendid service has been inaugurated.

Peking-Hankow Railway.—The history of the Peking-Hankow line may be said to begin with the declared policy of Chang Chih Tung that China should first devote her energies to the construction of trunk lines as the initial step in the development of her railways, when the memorial was presented asking for permission to extend the North China Railway to Tungchow in 1889, at which time he advocated a trunk line connecting Hankow and Lukouchao. The only hope of carrying out the scheme was to secure the assistance of foreign enterprise. Several companies were organized and submitted proposals and finally these simmered down to the consideration of a proposal from a group of American financiers, one from British capitalists, and another from the Belgian Syndicate. At this time Taotai Sheng Kung Po was director-general, having been placed in charge by Imperial edict, in 1896, of the projected line.

It appears that the American and British proposals were too precise in regard to certain stipulations or appeared so to Chang Chi Tung and Sheng Kung Pao, and especially so in view of the fact that the Belgian Syndicate were willing to meet every wish of the Chinese Government without question. The result was that the agreement between the Belgian Syndicate and the Chinese Government was signed in June 1897 by Sheng Kung Pao. The Syndicate soon found, however, that in order to financier the project in Europe, it would be necessary to secure improved terms from the Chinese government.

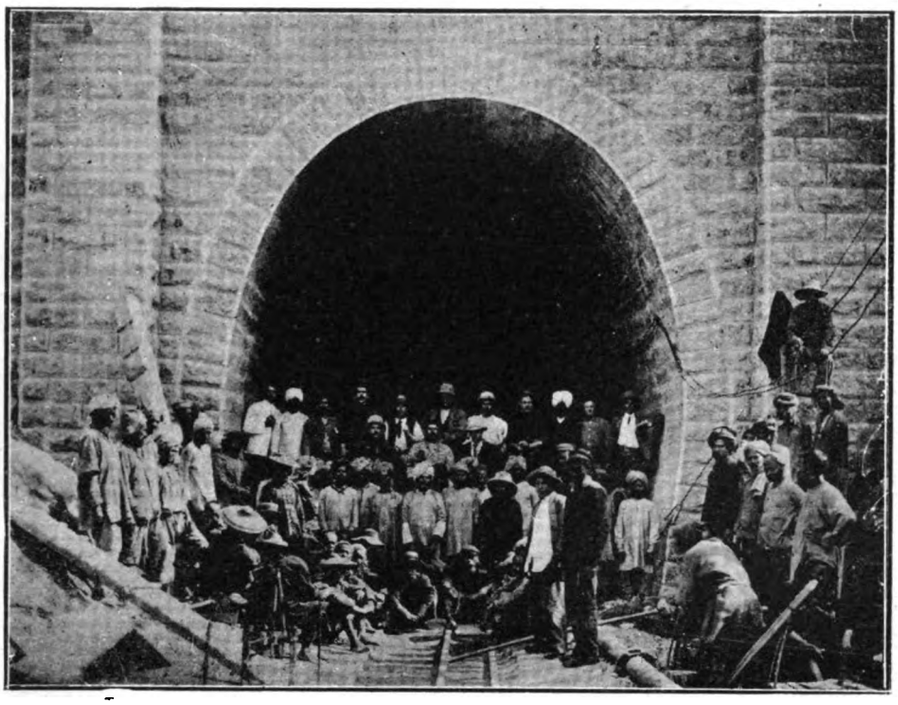
Finally, the arrangement was revised and ratified at Peking. The agreement in this form provided for the issue of a loan of francs 112,500,000 bearing interest at 5% and to be amortized within twenty years after 1909. The Chinese Government were given the right to repay the loan in or after 1907, thereby cancelling the agreement. The Imperial revenue and profits of the railway were made



(*Mee Cheung, Photographer.*)

KOWLOON-CANTON RAILWAY, BRITISH SECTION

ENGINEERING STAFF AT TUNNEL HEAD



(*Mee Cheung, Photographer.*)

KOWLOON-CANTON RAILWAY, BRITISH SECTION.—FINISHED ENTRANCE TO BEACON HILL TUNNEL

security for the loan and the financial arrangements were placed in charge of the Russo-Chinese Bank. In this connection, there is every reason to believe that French and Russian influence combined to the furtherance of the Belgian Syndicate's interests during these negotiations with the ultimate purpose of securing a link in the Peking-Hankow for a railway through the empire. A proposal was made by the China Association that the British Government should guarantee a loan covering the construction of the line in order to check-mate Russia and France. These efforts were of no avail. The Belgian Syndicate secured a working agreement covering a period of 40 years with full control of the line. When the loan was floated the fact that over three-fifths was subscribed in Paris confirmed the belief in the injection of Russian and French influence. And it was about this time that Russia renewed her efforts to secure a concession for a railway from Peking to some point on the Siberian line, but without success.

Previous to 1899 and before the Belgians took over the work of construction, the Imperial Railways of North China had surveyed the line south from Lukouchiao to Paotingfu under the direction of Mr. Kinder and Mr. T. J. Bourne in 1896 and the work practically completed. On the Hankow end, Chinese engineers had constructed a few miles. In connection with this construction, it is of interest to direct attention to the fact that much of the steel was supplied by the Hangyang Government Iron and Steel Works.

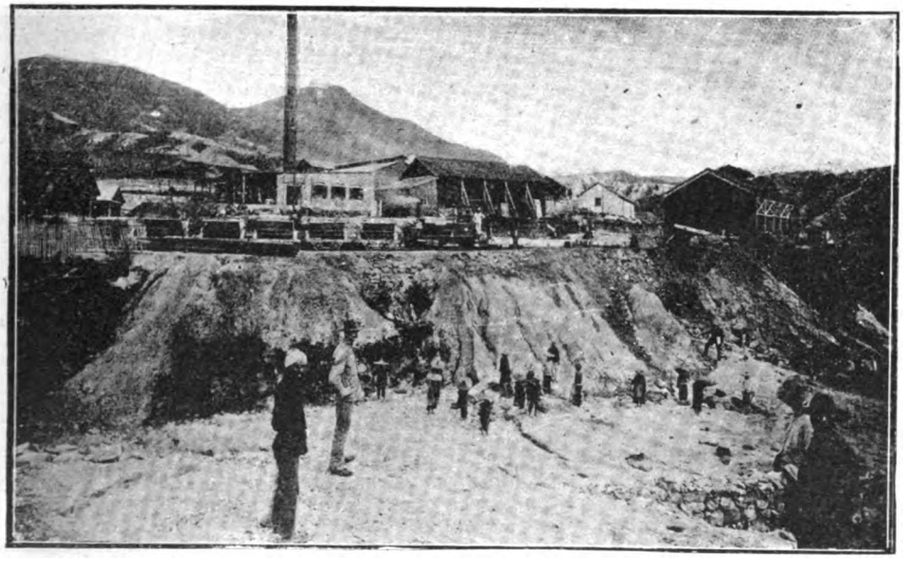
Construction began under the Syndicate in 1900 and was soon interrupted by the Boxer troubles. When peace was restored, the line was extended to the Chienmen gate at Peking and the name changed from the Lu-Han line to the Pe-han line. The construction was then pushed so rapidly that by the fall of 1905, the line was opened for traffic with the exception of the bridge over the Yellow River, the construction of which presented many serious engineering problems. The length of this bridge is 3.03 kilometers.

This line is a standard gauge, the steel used is 85 pounds furnished by the Hangyang Iron and Steel Works and the approximate cost per mile construction was $35,000 gold. The length of the line is about 756 miles. Recently a movement was inaugurated to arrange a loan for the purpose of redeeming the line from the Belgian Syndicate.

Hankow-Canton or Yueh-han Railway.—The concession for the construction of this line which is to connect Canton and Hankow was granted to an American syndicate in 1898, and, under the contract entered into, the syndicate, which was formed by Mr. Calvin Brice under the name of the American-China Development Company, undertook to furnish funds to the amount of $20,000,000 to be secured by the issue of Imperial gold bonds at 90 and drawing interest at 5% subject to redemption at the option of the Chinese Railway Company, the title of the company formed for the purpose

(*Mee Cheung, Photographer.*)

KOWLOON-CANTON RAILWAY, BRITISH SECTION.—WORKING PLANT AT TUNNEL

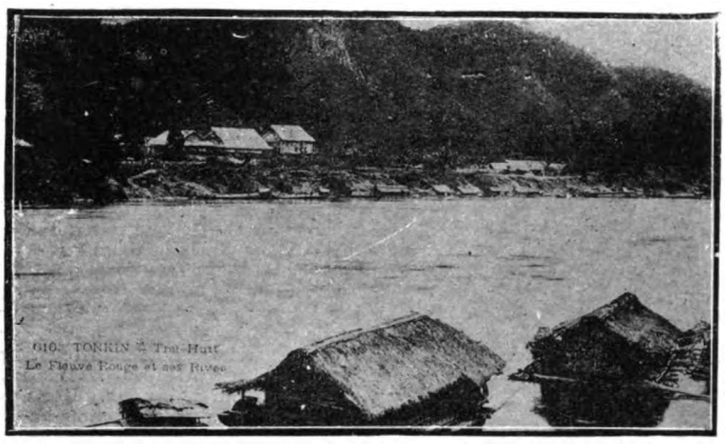


(*Mee Cheung, Photographer.*)

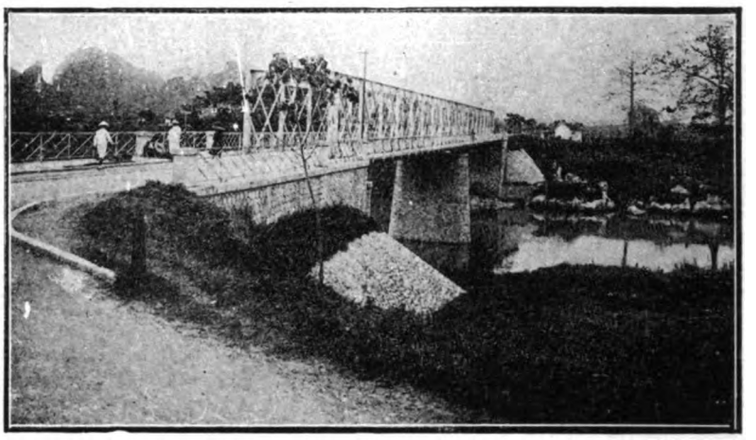
KOWLOON-CANTON RAILWAY, BRITISH SECTION.—PLANT AT TUNNEL

of concluding the agreement to which Mr. Wu Ting Fang signed as director-general on behalf of Sheng Kung Pao. The Development Company was to receive 5% of the cost of construction for supervision and share in 20% of the net profits. Three years were given for the completion of the work. Great opposition was met with from the Chinese authorities of Hunan when the survey was attempted and it was suggested that a route through Kiangsi be chosen. The chief engineer, Mr. Parsons, refused to accept this suggestion and under imperial protection the Honan section was surveyed. The line between Wuchow and Canton by the Parsons survey is 742 miles in length and includes the Samshui extension. Another line was run to the Pinghsiang mines from Chuchow and which has since been constructed and operated by the Chinese.

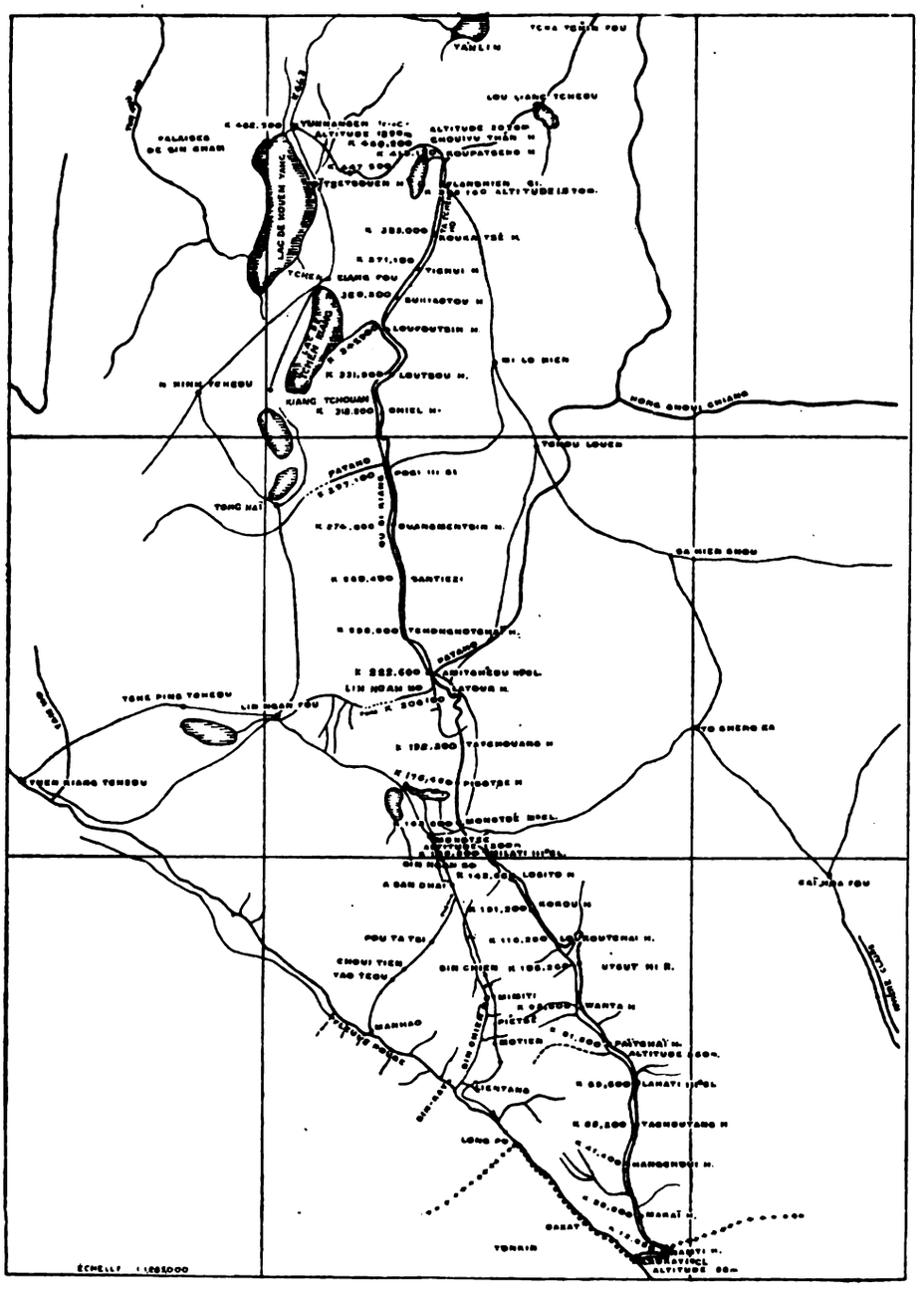
It was found, however, that the estimate of the cost upon which the original loan was based would not cover half the cost and it became necessary to have the agreement amended so as to increase the loan to $40,000,000. This was fought by the French and Belgian interests but without success and the Development Company not only secured an increase in the amount of the loan but an extension of time to five years. This was ratified by the Chinese government in 1900. A clause was also inserted prohibiting



TONKING.—THE BEST RIVER AT TRAI-HUT ON THE LINE OF THE RAILWAY TO YUNNAN



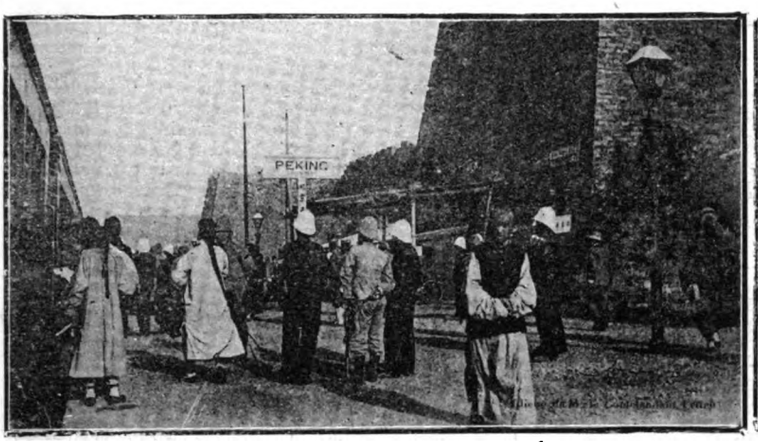
STATE RAILWAYS OF INDO-CHINA.—RAILWAY BRIDGE OVER THE SONG-KI-KONG RIVER NEAR LANG-SON



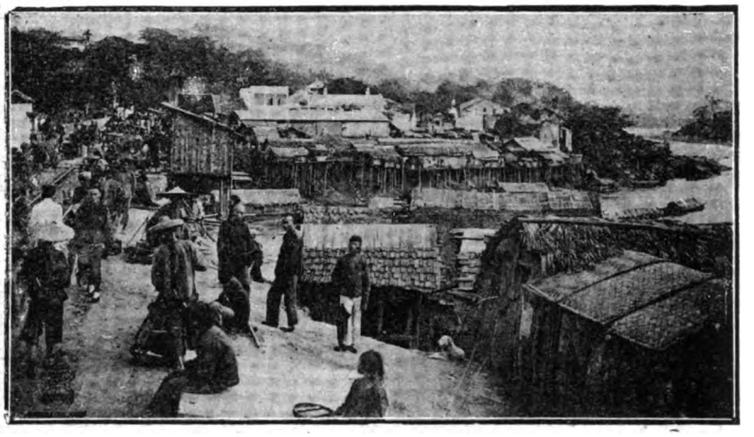
MAP OF THE YUNNAN RAILWAY

the American company from transferring its rights in the agreements to any other nationality. At this time the American Company made a proposal to the British and Chinese Corporation to merge their interests in China and this took the form of a proposition of an exchange of one-half interest in the Hankow-Canton for one-half interest in the Canton-Kowloon. Unfortunately, the war in South Africa intervened and British capitalists were not sanguine for foreign investment, and the result was that this opportunity for advancing the prestige of both countries in Southern China was neglected. The death of Mr. Brice had its effect on the enterprise of the company for the reason that he took a personal pride in the project and desired above all the advantages to be gained to see the American Railroad introduced successfully in the Empire. The American shareholders were skeptical about the enterprise on account of the disquietude among the Chinese that followed on the heels of the Boxer troubles. It was at this time that the Belgians saw their opportunity and easily managed to secure the controlling shares of the American Company, and upon the death of Mr. Brice the first evidence of Belgian predominance developed when General Whittier, the agent of the Belgian Syndicate, was chosen president in place of Mr. Parsons who had succeeded Mr. Brice. Then followed the introduction of Belgian engineers. Up to this time the construction included the completion of the Canton-Samshui Branch, a line by way of Fatshan 32 miles long. This branch was opened in 1904.

The Chinese Government was aroused over the control of the company by the Belgians until finally the American Government gave assurances that the company would remain controlled by Americans and Mr. John Pierpont Morgan responsible for the resumption of control. The Russian-Japan War broke out at this time and the Belgians became discouraged in their attempt to control the line as the fortunes of war indicated Russian defeat and necessarily the abandonment of her policy in regard to China. However, the inactivity on the part of the company and the unexplained delay in carrying out the work resulted finally in the conclusion of negotiations for the purchase of the line built and the cancelling of the concession. The sum of $6,750,000 gold was paid over to the company which covered the two surveys, the construction of 32 miles of track and in addition 50 miles of grading at the Canton end of the line. The cost of this work was estimated at $3,000,000 and the rights given up were valued at $3,750,000. This sum was raised by a loan of £1,350,000 from the government of Hongkong and with the understanding that British engineers should make up half the staff of the line should the Chinese employ foreigners on the work. Following the American Company, a Chinese Company was formed and the capital of $40,000,000 was subscribed for by the Chinese of which at least 20% was paid up, but owing to internal dissensions and lack of cohesion of the different elements, much delay has been occasioned.



CHINESE IMPERIAL RAILWAYS.—THE STATION AT PEKING



INDO-CHINA.—THE YUNNAN RAILWAY ENTRANCE TO LAOKAI

The completion of the Pingsiang branch connecting the mines with Wuchow by way of Liling was completed in 1905 by Chinese capital.

It is conceded that the apathy and generally unsatisfactory manner in which the American Company conducted its operations in China and the manner in which it withdrew from its agreement, has had much to do with the attitude of the Chinese government in the matter of granting concessions to foreigners, and nothing has done more to injure American prestige in China than the manner in which this company scuttled after the death of Mr. Brice, who, had he lived, would have taken the greatest degree of personal pride in carrying out the agreement to a successful conclusion, with the result that a monument to American enterprise would have been established in China and American prestige enhanced.

A correspondent of the *North China Daily News*, writing from Mongfukong in June of this year, has the following to say of the progress made on the Hankow-Canton.

"The completed survey to Yingtak gives a mileage of ninety-three miles. The track, from the ancient temple at Tai Miu, mainly follows the course of the river. When completed it will open the magnificent scenery of the North River to many who have hitherto been deterred from viewing it, because of the unsatisfactory accommodation of the present launches to Yingtak or the provoking slowness of the more commodious house-boat.

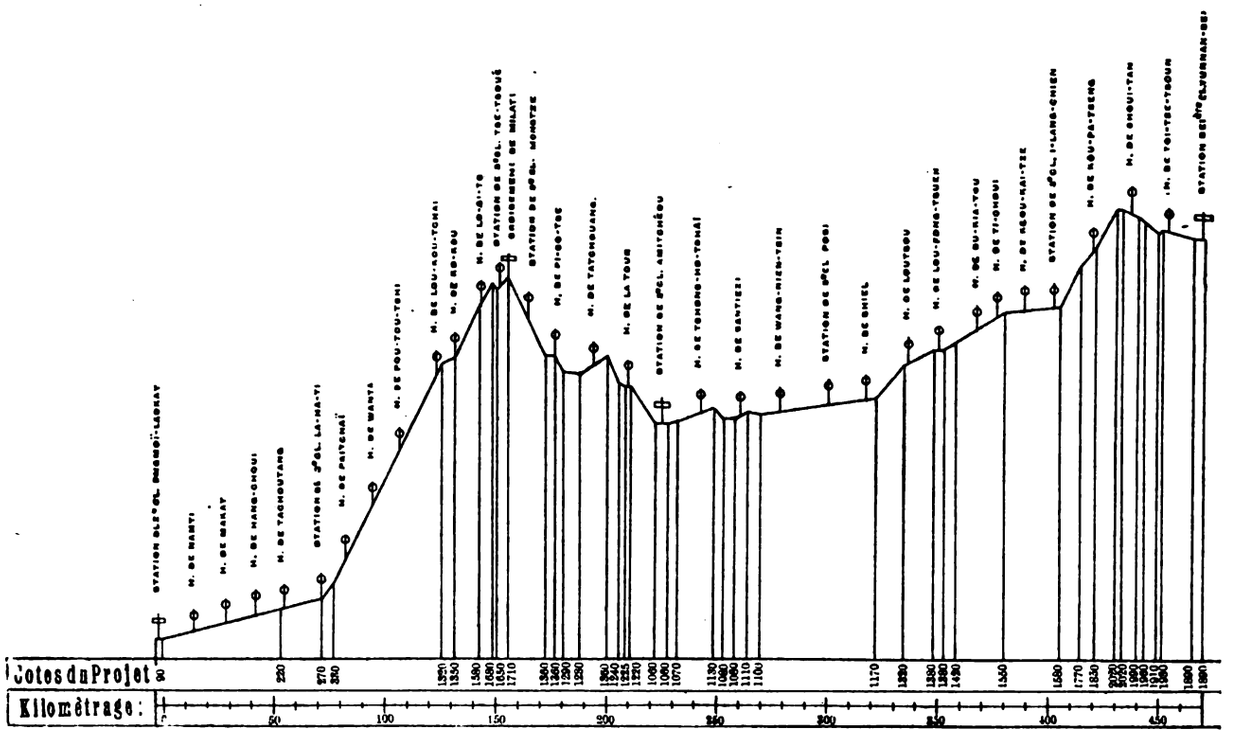
"The survey gives no less than three tunnels to Yingtak. One, 300 feet long, at Tai Miu, another of similar length at the Blind Boy's Pass—a few miles above the mouth of the Lienchow river—and a larger one of over 500 feet some five miles below the city of Yingtak. The latter is through a rather soft sandstone, but I am afraid that although some are speaking confidently of a completed railway running to Yingtak by X'mas, 1909, the arduous work of cutting these tunnels will mean that another year at least will be required before trains are running.

"The road is divided in ten-mile sections, and construction parties are now merrily working up to the seventh section from Canton. Wooden bungalows have been erected at Tai Miu to accommodate the resident engineer, and negotiations are in progress for land for similar buildings in the neighborhood of Yingtak.

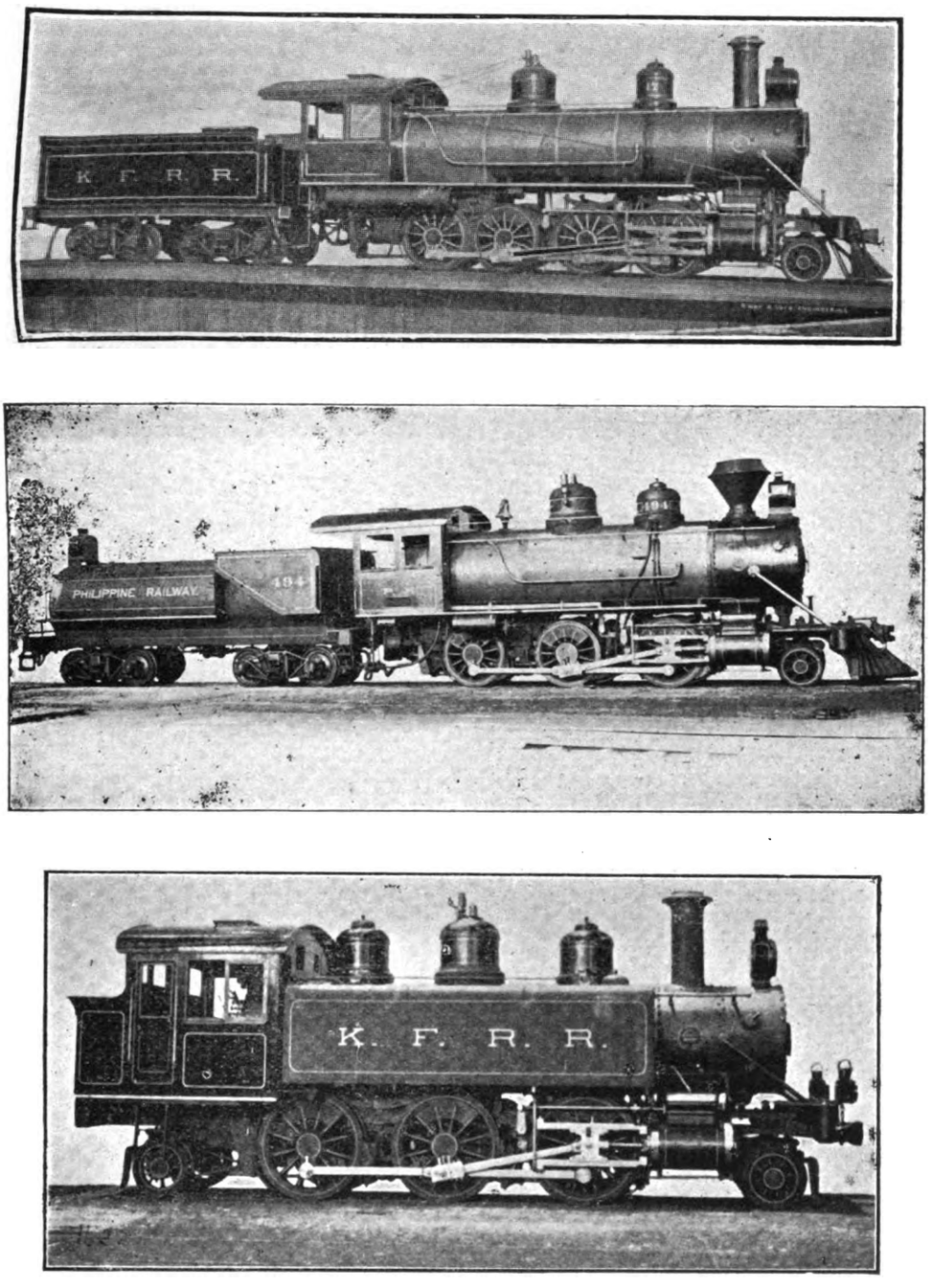
"The East river which enters the North River at Yingtak will require to be bridged. It is a waterway of considerable size, and, where the railway crosses it half-a-mile above the North River, it is some 800 feet wide. On the present plan this will involve the station being placed at least a mile from Yingtak city, half of which distance will be covered by ferry."

The Canton-Kowloon Railway. Among the five concessions acquired from the Chinese Government by the British and Chinese Corporation one of the most important was the railway to connect Canton and Kowloon, granted in 1899. The preliminary survey of this line was concluded a few years later, but it was not until 1906 that the construction of the Kowloon section was commenced. The entire line as surveyed runs about 20 miles in British territory and 100 miles in Chinese territory, the latter section being the line involved in the concession from the Chinese government. Some delay was occasioned in arranging a loan agreement with the Chinese Government, but finally provision was made for a loan of £1,500,000, redeemable in 30 years, at 94% of the face value of the bonds, the latter bearing 5% interest, secured by first mortgage on the undertaking and guaranteed by the Chinese Government. The administration was to consist of a Chinese managing director, a British engineer-in-chief and a British chief accountant.

There is prospect that the entire line will be completed by 1910. During the year 1907 the total expenditure on the British section alone was $2,914,461, and up to the present time there was great activity in construction. Out of this amount over $1,000,000 has been spent on tunnelling. The most difficult work in this direction is that of the Beacon Hill tunnel. This tunnel is being pierced from both ends and when completed will be 5,100 feet long and 25 feet wide. For the present year the expenditure will reach about $4,000,000 which will bring the outlay up to about $7,000,000. Before its completion it will probably cost in the vicinity of $10,000,000. On the Chinese section last March headquarters were established in Shaklung and there is prospect



PROFILE OF THE COUNTRY BETWEEN LAOKAI AND YUNNANFU



LOCOMOTIVES IN OPERATION ON FAR EASTERN RAILWAYS BUILT BY THE BALDWIN LOCOMOTIVE WORKS

that the two sections will be completed about the same time. When the railway is completed to Canton it will place Hongkong in a most desirable position in relation to South China trade, and it is anticipated that the Hankow-Canton line will have been completed so that the full benefit of this connection will be realized.

The Shantung Railway. The lease of Kiaochow by Germany in 1898 for 99 years was the outcome of the murder of two German missionaries in the province of Shantung in 1897. The commander of the German squadron took possession and a demand made on the Peking government for the punishment of the governor of Shantung; an indemnity to the families of the victims and an amount to reimburse Germany for the cost of occupation, besides securing a preference for German railway enterprise in that province. These demands were practically acceded to and with the signing of the lease a railway convention was concluded which follows:

I.—The Chinese Government sanctions the construction by Germany of two lines of railway in Shantung. The first will run from Kiaochow and Tsinan-fu to the boundary of Shantung province *via* Wei-hsien, Tsinchow, Pashan, Tsechuen and Suiping. The second line will connect Kiaochow with Chinchow, whence an extension will be constructed to Tsinan through Laiwuhsien. The construction of this extension shall not be begun until the first part of the line, the main line, is completed, in order to give the Chinese an opportunity of connecting this line in the most advantageous manner with their own railway system. What places the line from Tsinan-fu to the provincial boundary shall take in *en route* is to be determined hereafter.

II.—In order to carry out the above mentioned railway work a Chino-German Company shall be formed, with branches at whatever places may be necessary, and in this Company both German and Chinese subjects shall be at liberty to invest money if they so choose, and appoint directors for the management of the undertaking.

III.—All arrangements in connection with the works specified shall be determined by a future conference of German and Chinese representatives. The Chinese Government shall afford every facility and protection and extend every welcome to representatives of the German Railway Company operating in Chinese territory. Profits derived from the working of these railways shall be justly divided *pro rata* between the shareholders without regard to nationality. The object of constructing these lines is solely the development of commerce. In inaugurating a railway system in Shantung Germany entertains no treacherous intention towards China, and undertakes not to unlawfully seize any land in the province.

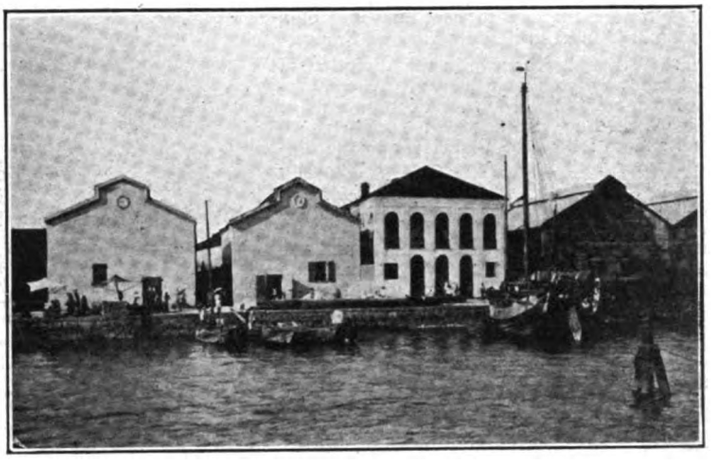
IV.—The Chinese Government shall allow German subjects to hold and develop mining property for a distance of 30 li from each side of these railways and along the whole extent of the lines. The following places where mining operations may be carried on are particularly specified along the northern railway from Kiaochow to Tsinan, Weihsien, Pa-shan-hsien and various other points; and along the Southern Kiaochow-Tsinan-Chinchow line, Chinchow-fu, Luiwuhsien, etc. Chinese capital may be invested in these operations and arrangements for carrying on the work shall hereafter be made by a joint conference of Chinese and German representatives. All German subjects engaged in such works in Chinese territory shall be properly protected and welcomed by the Chinese authorities and all profits derived shall be fairly divided between Chinese and German shareholders according to the extent of the interest they hold in the undertakings. In trying to develop mining property in China, Germany is actuated by no treacherous motives against this country, but seeks alone to increase commerce and improve the relations between the two countries.

If at any time the Chinese should form schemes for the development of Shantung, for the execution of which it is necessary to obtain foreign capital, the Chinese Government, or whatever Chinese may be interested in such schemes, shall, in the first instance, apply to German capitalists. Application shall also be made to German manufacturers for the necessary machinery and materials before the manufacturers of any other Power are approached. Should German capitalists or manufacturers decline to take up the business the Chinese shall then be at liberty to obtain money and materials from sources of other nationality than German.

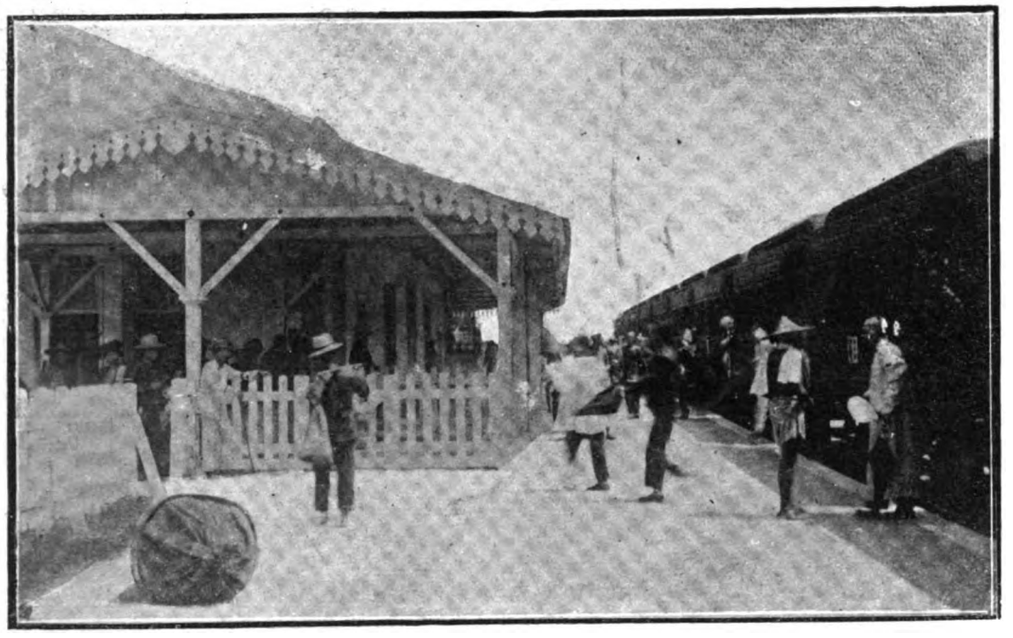
Then followed the development by the German government of the port of Kiaochow for which 8,500,000 marks were appropriated by the Reichstag. A company to be known as the Schantung Eisenbahn Gesellschaft was organized at Berlin with a capital of 54,000,000 marks. By its concession the Syndicate was to build a line from Tsingtau to Kiaochow and from the latter point by way of Weihsien to Chinanfu together with a branch to Poshan, within a period of five years, In addition the Syndicate was given an option to construct a line from Kiaochow to Ichowfu and another connecting Chinanfu and Ichowfu. In consideration of this concession the Syndicate agreed to turn over to the German government a part of the surplus profits after paying a dividend of 5%. The construction of the main line was completed in 1904, a distance in all of 240 miles. The branch to Poshun is 34 miles in length, making, in all, 274 miles approximately. The proposed line between Ichowfu and Chinanfu was abandoned in favor of the Anglo-German Syndicate in connection with the construction of the Tientsin-Pukow line. The Kiaochow-Ichowfu line was surveyed but further work was abandoned. The cost of the line was approximately $47,500 gold a mile. The editor of the *London and China Express* who visited Shantung last year makes the following interesting report:

"The Schantung Eisenbahn Gesellschaft runs between Tsingtau and Tsinan-fu, the capital of the province, and it has a branch line to Poshan for the mines there. The main line is 412 kilometers long. It is standard gauge and laid on iron sleepers. Moderate weight rails are employed, and at present no fast speeds are attempted. The journey in fact takes 13

BUND AT SWATOW



BUND AT SWATOW

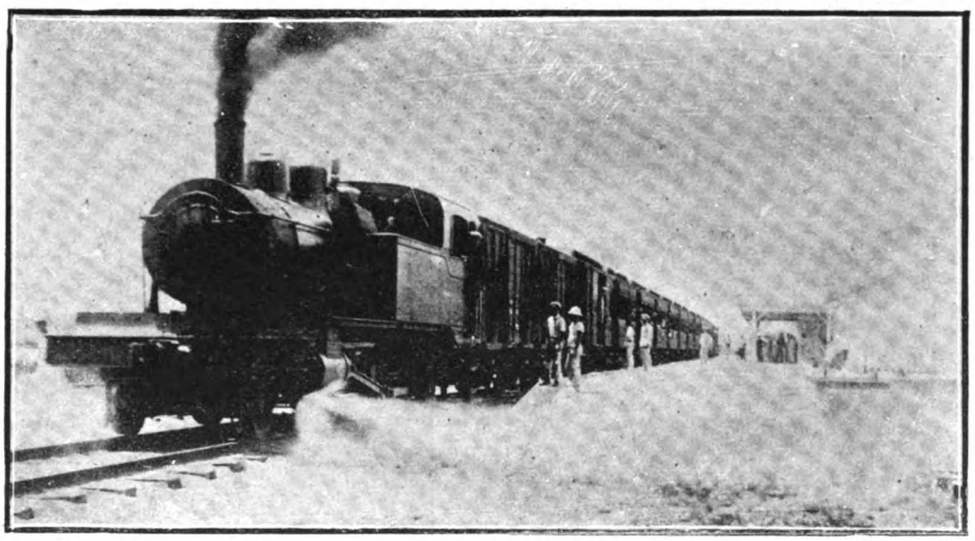


(*Mee Cheung, Photographer.*)

SWATOW-CHAOCHAO-FU RAILWAY.—THE STATION AT SWATOW

hours, of which nearly three hours were stoppages. Some acceleration of the service is to take place this autumn. Certainly what seemed to strike one at present was the unnecessarily long halts that occurred at some of the stations, and again the large number of stations. Other railways in China have greater distances as a rule between the stopping places, and one wondered whether all the stations could pay. A reference to the last issued report showed, however, that each was contributing a net revenue, so that their comparative frequency is justified. The stations are good, useful buildings, without ostentation, and adapted to the purposes for which they are designed. The bridge work over the many shallow rivers and streams, which in the rainy season often become raging torrents for a short time, is fairly solid, and the road bed in good order, certainly for the speeds at which we progressed. According to the last available figures, those for 1906, the stock comprised 30 locomotives, 107 passenger and baggage wagons, including three postal cars, and 720 freight cars. The latter include some fine covered vans for the transport of straw braid, specially constructed so as to take 15 tons of measurement braid. In 1906 there were carried 846,000 passengers, against a little over 800,000 in 1905, and 381,000 tons of goods, against 310,000 tons the year before. The coal transported was 208,000 tons. The distribution of petroleum is growing, but as yet only amounts to 10,000 tons a year. The passengers travelled on an average 70 kilometers in 1906, against 68 in 1905, and the goods haulage was 179 kilometres, being the same as for 1905. The receipts in 1906 were $2,169,000, against $1,912,000 in 1905. This meant $4,970 per kilometre, against $4,382 in 1905. The expenses per kilometre in 1906 were $2,089. The passenger fares, generally speaking, are moderate in amount. The surplus, aided by a higher exchange, came to m.2,642,000, and after passing 5 per cent. to reserve and 5 per cent. to special reserve a dividend of 4¼ per cent. was paid on the capital of m.54,000,000. The staff in Shantung comprises 57 Europeans and 424 Chinese. The company has a complete range of workshops at Sypang close to Tsingtau, where all repairs to stock and other material can be carried out, as well as construction work up to a certain point. The company houses its employees here, and the workmen's dwellings are a model of what should be done for Chinese in this way."

French Railways in China.—The history of French influence in Tonking opens in 1787. It grew out of the internal troubles of Tonking and Annam. The French practically restored the deposed king of Annam to his throne under the protectorate of France. A revolution followed and French influence wavered until 1859 when Saigon was taken by the French who occupied other strategic points. Later a French protectorate was established over Camboja. The refusal of the authorities at Hanoi to permit a French merchant to export a cargo of copper and tin in 1871 and the failure of the governor of Cochin-China to secure an amicable settlement of the difficulty, led to the taking of Hanoi by assault, and in 1873 the Red River was declared open to trade. A treaty was concluded in 1874 by which Hanoi, Haiphong and Quinhon were opened to trade. The relations between the natives and the French continued unsatisfactory and the former did not hesitate to insult French representatives and show hostil-

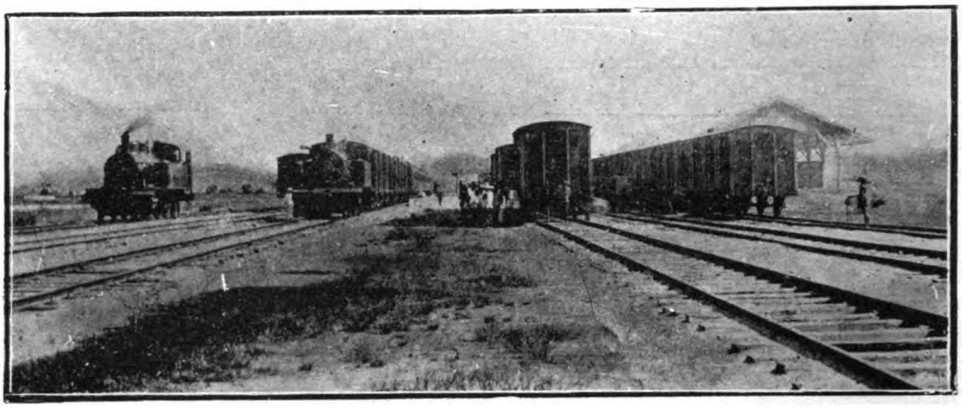


(*Mee Cheung, Photographer.*)

SWATOW-CHAOCHAO-FU RAILWAY.—TRAIN LEAVING STATION

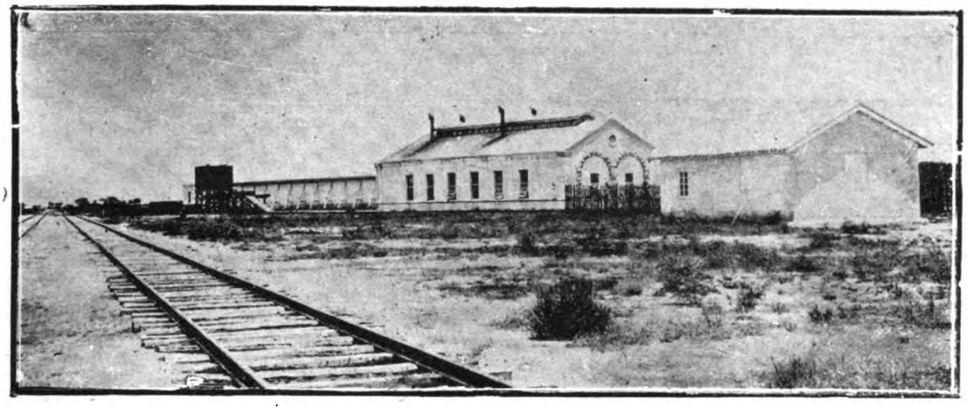
ity to the latter. Fighting followed and finally in 1885 a treaty was concluded by which France agreed to maintain order in the provinces bordering on Annam. More territory was opened up to French trade, the privilege of opening up mines and to continue projected railways in Chinese territory was given France.

In 1898 the first move in the direction of active railway campaign began. A commission was appointed to consider a comprehensive scheme including a line from Haiphong to Hanoi and to follow the Red River to the Chinese territory. The right to extend the Phulangthuong-Langson line to Lungchow, a distance of 40 miles, into Chinese territory was recognized in 1897. The gauge of the line to Langson was increased to one meter and the extensions from Phulangthuong to Hanoi and from the former point to the Chinese frontier northward to Chinese territory were completed at an outlay of francs 20,000,000. In 1898 an agreement was made with the Chinese government whereby the French government acquired



(*Mee Cheung, Photographer.*)

SWATOW-CHAOCHAO-FU RAILWAY.—VIEW OF THE YARD AT SWATOW



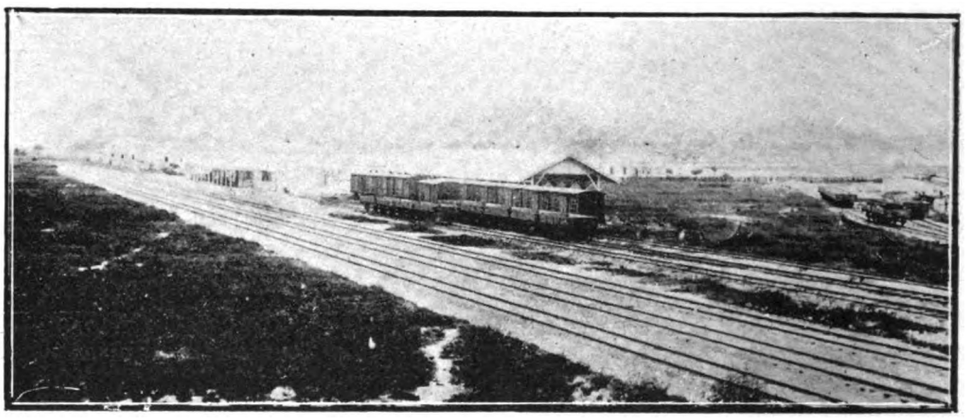
(*Mee Cheung, Photographer.*)

SWATOW-CHAOCHAO-FU RAILWAY.—MACHINE SHOIS

the right to extend its lines from the Tongking frontier to Yunnanfu. The cost was estimated at francs 101,000,000 and a French Syndicate was formed backed by the government to undertake the work. The Syndicate was guaranteed the sum of francs 3,000,000 annually for 75 years and the balance necessary was subscribed by the company and the Indo-Chine government in equal parts. The work commenced in 1901 and in 1903 the conditions under which the railway was to be built and operated in Chinese territory were satisfactorily adjusted. The concession for this line was to extend over a period of 80 years and the line was to be built with French capital without any Chinese guarantee. Work was then commenced on the Chinese section and it is expected that it will be completed by 1910. There is a project on foot to extend this line to Chengtu and again to Chungkiang.

There is also the projected extension of the Hanoi-Langson line to Kwanchow by way of Lungchow and Nanningfu and from Nanningfu to Wuchow so as to tap the provinces of Kwangsi and Kwangtung by means of a number of projected feeders and connection with Kweilin and Canton. For the present there is little hope for favorable consideration of concessions by the Chinese government although the advantages to result from railways in this section are apparent.

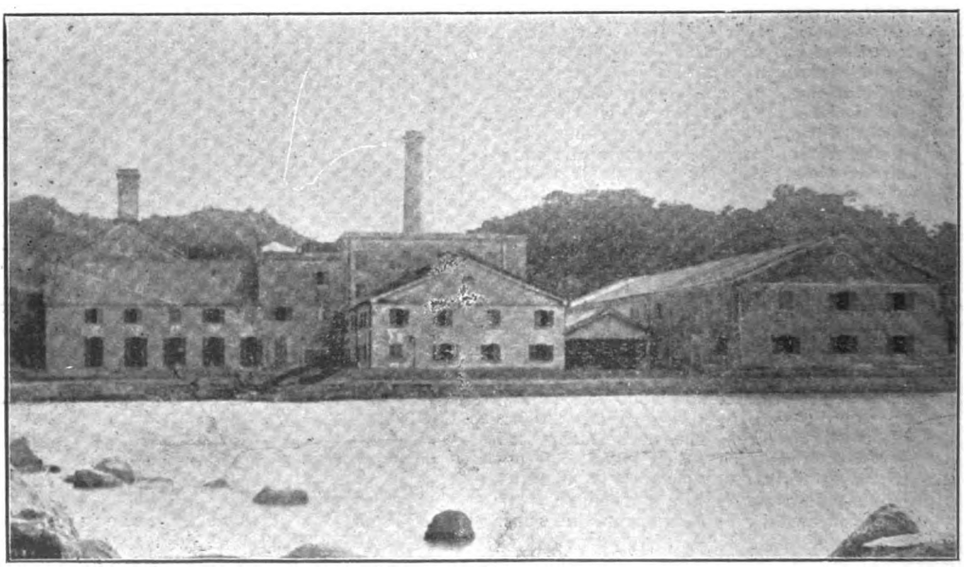
The Shanghai-Nanking Railway.—This railway, which connects Shanghai and Nanking by way of Soochow, Wusieh and Chinkiang, was completed last March and forms the initial division of what is known as the proposed Yangtze Valley system. In 1898 a line connecting Woosung and Shanghai, a distance of 10.5 miles was completed with Chinese capital. About this time the British and Chinese Corporation had asked the Peking government for



(*Mee Cheung, Photographer.*)

SWATOW-CHAOCHAO-FU RAILWAY.—VIEW OF YARD

SWATOW-CHAOCHAO-FU RAILWAY.—INTERIOR OF FIRST CLASS COACH



CHINA SUGAR REFINERY AT SWATOW: NOT WORKING

THE BUND AT AMOY.—THE LARGE BUILDING IS THE CHINESE IMPERIAL CUSTOM HOUSE, WITH THE OFFICES OF THE OSAKA SHOSEN KAISHA AND BANK OF TAIWAN AT SIDE

a concession to construct a railway from Shanghai to Nanking and during the year a tentative agreement was reached and a final agreement was concluded in 1903. The loan agreement provided for a loan of £3,250,000 secured by Imperial Bonds, to be taken up by the Corporation at 90% and carrying interest at 5% and redeemable at the end of 12.5 years at 102.5% and at the end of 25 years at par. The duration of the bonds was 50 years. In addition provision was made for the purchase of the Woosung-Shanghai line at Tls. 1,000,000 and have it included in the proposed system. A board of five commissioners was appointed, two members of which were chosen by the Corporation as well as the Engineer-in-chief. Mr. Collinson was selected for the last position. There were many difficulties to surmount in the construction owing to lack of co-operation on the part of the local authorities in securing the land for the right-of-way and overcoming the many prejudices of the people. However, with the exercise of great patience, the construction proceeded and in 1904 the first section of 12 miles between Shanghai and Naziang was opened, and in July, 1906, Wusieh was reached. In March of this year the entire line to Nanking was opened to traffic. The entire length of this line is about 200 miles.

Reference to the Shanghai-Hanchow-Ningpo Railway which was included in the concessions secured by the British and Chinese Corporation as well as a projected line between Pukow and Hsinyang (connection with the Pe Han) of these lines, may be made in connection with the Yangtze System. Several demands for the cancellation of these concessions by the local anti-foreign element did not meet with success and recently arrangements were made for the carrying out of the construction. The terms of the agreement recently concluded between Peking and the British and Chinese Corporation provide that the terminus of the line will be connected with that of the Shanghai-Nanking Railway in Shanghai or its vicinity, whence it will run to Hangchow and Ningpo, via Fungchingtsun, Kiashingfu, Hushu, Hangchowfu, and Kiangkau. The road is to be completed within three years.

The amount of the loan to be raised is £1,500,000 ($7,299,750), the interest on which will be 5 per cent. per annum, to be paid by the Chinese Government semi-annually. The loan will be applied to the building of the line alone, including payment for locomotives, carriages and all necessary equipment, and the running expenses before the completion of the line. Money to be used in buying land and paying interest must be provided by the Chinese Government from other sources.

During the construction of the railway the corporation shall be allowed to act as managers for the provision of all materials which must be procured in foreign countries for the railway. The corporation shall purchase all materials required in the open market at the lowest prices obtainable, but it is understood that all such materials shall be good and of satisfactory quality. If English made materials are equal in quality and price with those of other countries, all the necessary materials shall be purchased in England. If any Chinese products or Chinese made materials are equal in price and quality to those produced or manufactured in foreign countries, such products or materials shall be purchased in China in order to encourage Chinese industry.

It is stipulated that several sections of the

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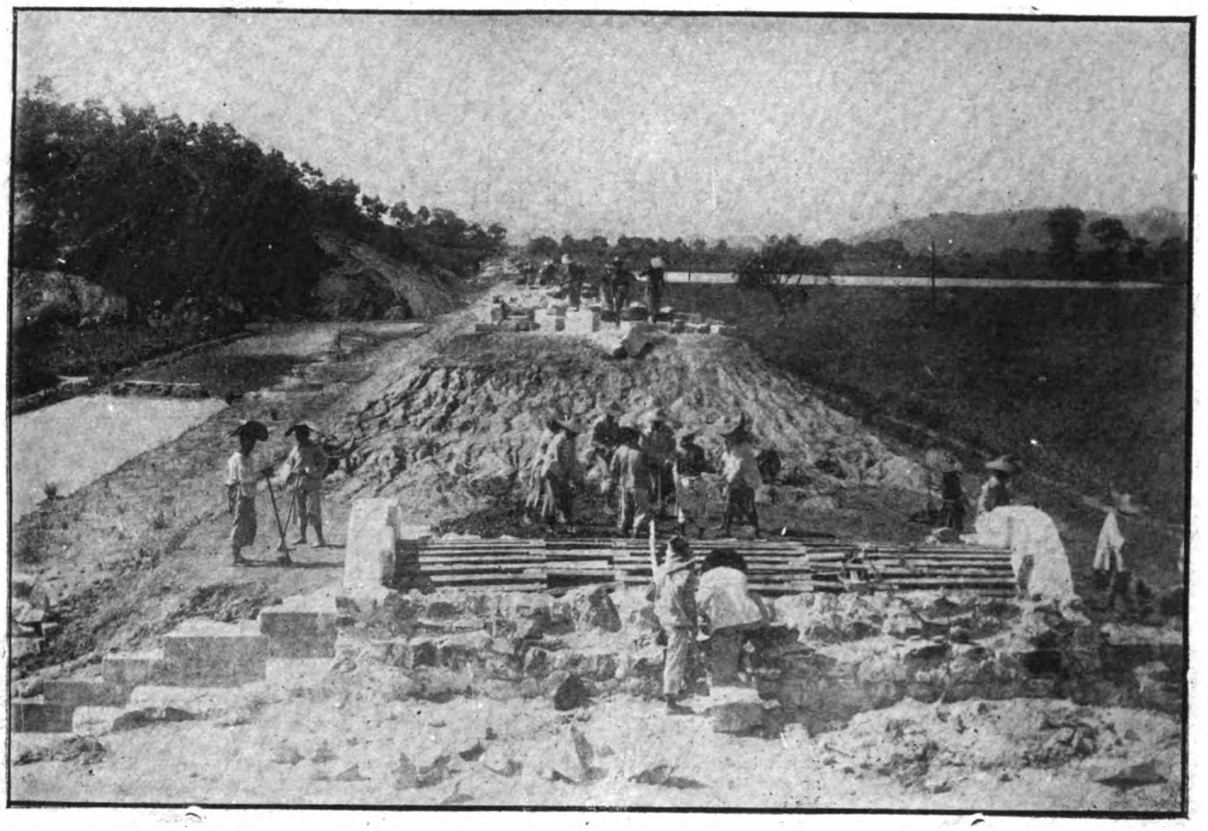
ANOTHER VIEW OF THE BUND AT AMOY



EARLY STAGE OF ROADBED CONSTRUCTION ON THE PEKING-HANKOW R. R.

line shall be constructed by the Chinese, and, therefore, the work of prospecting and surveying will only be undertaken with the permission of the Board of Posts and Communications.

In connection with the construction of the Shanghai-Hangchow-Ningpo line, the road being built from Wuhu to Kashing via Hangchow, a distance of 150 miles, by Chinese capital, and another line from Kashing to Hangchow being under construction and proposed extended to Ningpo, is evidence of the competition promised the British road by the Chinese in Anwhei, Kiangsu and Chekiang. In addition to the above, the Chinese are engaged in constructing a line from Shanghai to Kashing to connect with the Chekiang and Anhwei systems.

The Tientsin-Pukow Railway, which will connect the Shanghai-Nanking and the Shanghai-Hangchow and Ningpo systems with the Imperial Railways of North China, is one of the most important lines now under construction and will form a direct connection with Ningpo when the lines projected and under construction are completed. The construction is now under way and there is every indication that there will be no delay in bringing the enterprise to a completion with all speed.

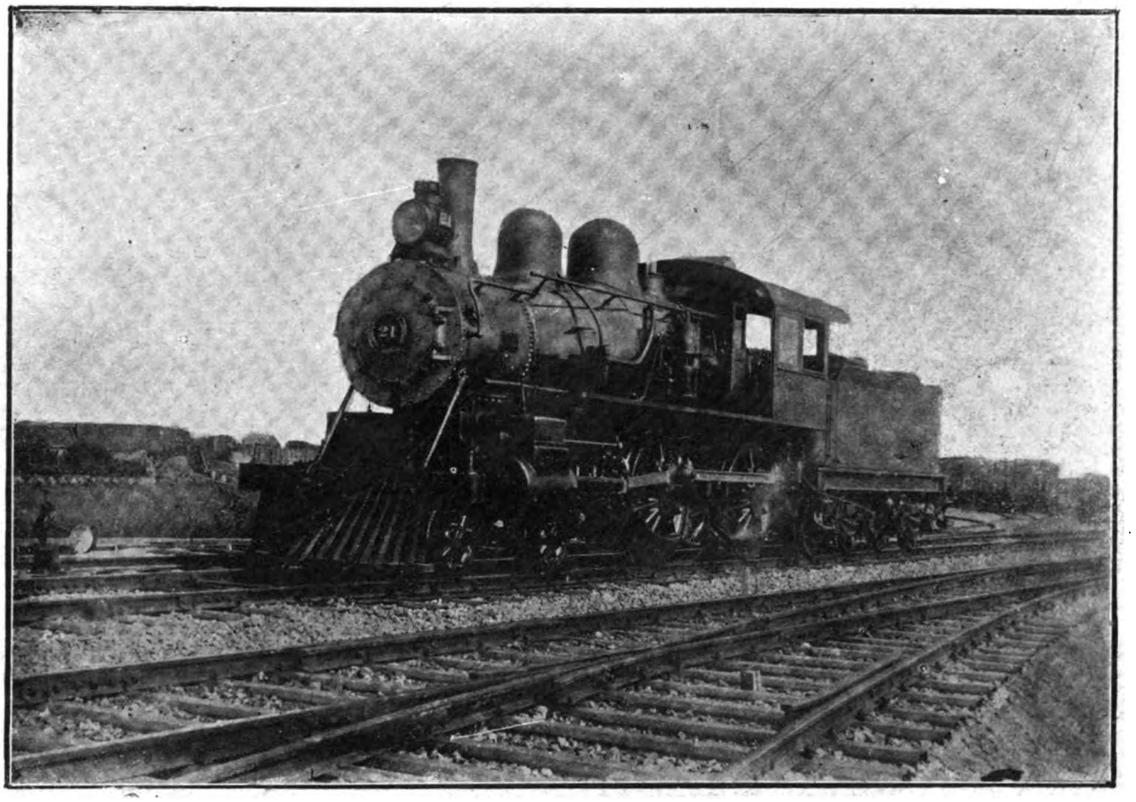
The final contract for the Tientsin-Yangtsze main line was signed this afternoon, says the Peking correspondent of the *Times* on January 12, by the Chinese Government and the representatives of the Deutsch-Asiatische Bank and of the British and Chinese Corporation. An imperial edict sanctioning the contract was issued this morning, the British Government having consented to the signature without waiting for the signature of the Chekiang Railway, discussions on the settlement of which are still proceeding between the Central Government and the provincial gentry.

The German section of the Tientsin-Yangtsze Railway will run from Tientsin through Techau, on the Grand Canal, and Tsinanfu, the capital of Shantung, to the southern border of Shantung. Thence the British section will run through Kiangsu province to Pukou, on the Yangtsze, opposite Nanking, a distance of 1,085 kilometres. The loan is for £5,000,000 with interest at 5 per cent., and is to run for 30 years. Roughly two-thirds of the capital is to be German and one third British, in proportion to the respective lengths of the sections. The price to China will be 93, and the security is a Chinese Government guarantee and certain provincial revenues. Redemption begins after ten years. A loan of £3,000,000 is to be issued within one year, and construction is to be finished within four years of the beginning of the work. The construction and control are entirely vested in the Chinese Government, with European chief engineers appointed by the Chinese to advise on construction, and European auditors appointed by the German and British groups to watch over the interests of the bond-holders. The syndicate receives a fixed sum in compensation for surrendering its rights to the profit granted in the preliminary agreement. The contract provides that subscriptions to the loan will be invited in Europe and in China of equal conditions, preference being given to the application of the Chinese Government if received before the issue of the prospectus.

"The final agreement shows how Chinese diplomacy has succeeded in altering the conditions of the preliminary contract of May 18, 1898. The Chinese recognize that such favorable terms have never been obtained before, nor such a clear admission of China's claim to control her railways without foreign interference."

The Peking Syndicate Railway.—The Peking Syndicate was organized in 1897 in London with a capital of $100,000 by British and Italian capitalists and had for its purpose the development of the almost inexhaustible mineral wealth of Shansi and Honan. After some delay negotiations were concluded in 1898 for a concession to develop the coal, iron and petroleum deposits within certain boundaries in the province of Shansi. A little later the concession was extended to cover that part of Honan north of the Yellow River. The capital of the company was then increased to $7,600,000. The question of transportation became one of the most important problems to solve and it became necessary to provide railway transportation from the mines to the most convenient waterways. The concession provided for this contingency in a general way and included the right to connect with the Yangtze. Surveys were made through Southern Honan to the Han River to Siangyang for an outlet, but it was found that the water was not deep enough for the purpose at Siangyang. Another line was surveyed to Pukow and this latter was recommended as the most desirable route and objective point. A survey was also concluded connecting Taokou at the head of navigation on the Wei River in Northeastern Honan to Tzechoufu in Shansi. The work of construction on the line was commenced in 1900, but this had to be delayed on account of the Boxer trouble. In 1902 work was renewed and a mining camp was established at Jamieson in Northern Hunan. With the establishment of this camp it was decided to construct a line from Taokou to Pashan, a slight modification of the regular survey. The line runs from Taokou to Hsinhsingianghsien by way of Weihu continuing through Jamieson to Pashan. From there it will be continued to Tzechoufu. The line from Taokou to Pusan was completed in 1905, covering a distance of 92 miles approximately. The Syndicate received so many setbacks in its endeavor to develop its concessions that finally arrangements were concluded whereby the Chinese made a repurchase. The following from the 1906 report of the Syndicate bearing on this subject may be of interest:

"The persistent refusal of the provincial authorities in Shansi to permit the syndicate to acquire land and commence mining was fully explained in last year's report. It was arranged that a prominent Shansi official, named Ting Niehtai, together with several representatives of the Shansi Bureau of Trade, and of the gentry, should come to Peking to meet Mr. Brown and endeavor to come to a



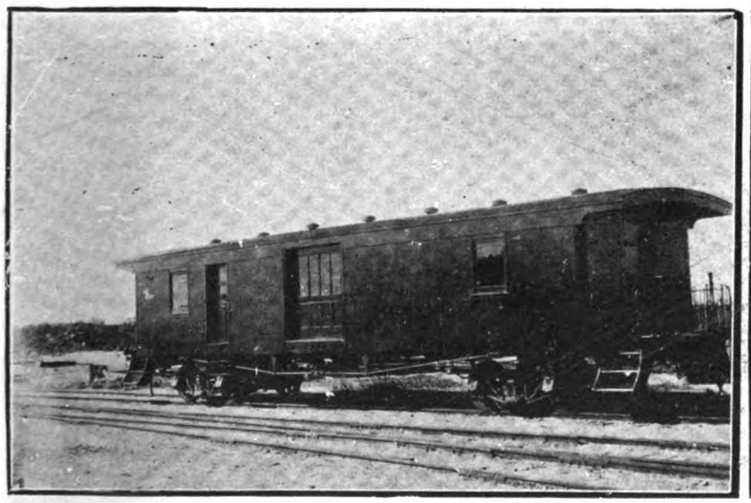
IMPERIAL CHINESE RAILWAYS.—CANTON-HANKOW LINE
ENGINE NO. 21, BUILT BY THE AMERICAN LOCOMOTIVE COMPANY

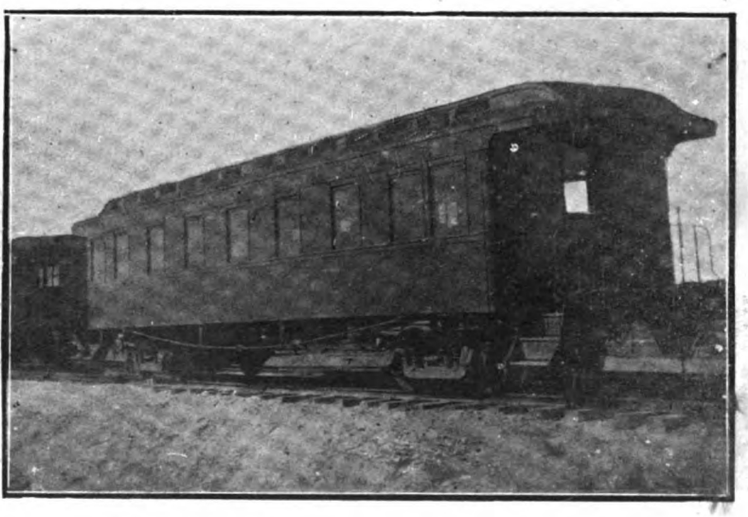
settlement. Mr. Brown was ultimately instructed that the directors would surrender the concession for the sum of £1,500,000 sterling, half in cash and the balance in guaranteed instalments, and he so informed the Shansi delegates. The counter offer made on their part was Tls. 600,000. Finally, on January 4, 1908, after the offer had been by successive stages raised to Tls. 2,625,000, the delegates informed Mr. Brown that this was their last word, and if it was not forthwith accepted they would withdraw from all further negotiations. At this stage the directors again sought counsel with the Foreign Office, and were informed that, in the opinion of Sir John Jordan, this was in truth about the limit of the Shansi delegates' offer (whose attitude, he added, had recently become very uncompromising), and that there was no prospect of getting the Central Government to add to it. Under these circumstances, the directors took the responsibility of instructing Mr. Brown to close with the offer, if better terms were not to be got. Fortunately, Mr. Brown was able, as a last effort, to get the offer raised to Tls. 2,750,000, and with that he closed, half to be paid on Feb. 21, 1908, and the other half in three equal yearly instalments, beginning May 19, 1909. The directors have not abandoned all prospect of yet doing work in Shansi. It is part of the agreement that if hereafter foreign capital is required for mining, iron smelting, or transport of materials (meaning, presumably, railways), the Peking Syndicate shall have the first option. The directors consider the stipulation a very valuable one."

Recent reports from Shansi announce the formation of a native syndicate with a capital of Tls. 5,000,000 to take over the mining interests, but so far the funds have not been realized.

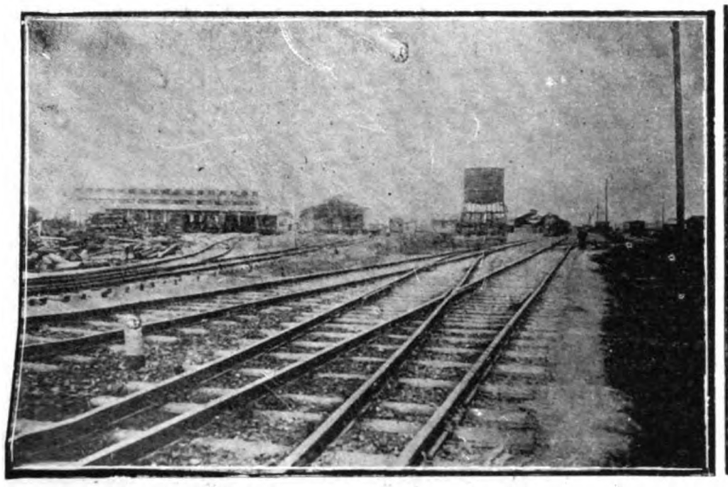
By the agreement made in July, 1905, the Chinese Government agreed to take over the line from the Syndicate and give in payment gold bonds bearing interest at 5% and the control of the road would remain with the Syndicate until the bonds are redeemed. The cost of constructing the road to Pashan was estimated at £614,600 and is represented by a loan of £700,000 which is accepted by the Syndicate at 90. The loan runs for thirty years and is redeemable after 1916. While the line has been handed over to the Chinese Railway Administration it continues to be operated by the Syndicate, the latter receiving 90% of the net profits. The continuation of the line to Tzechou and provision for its construction was also included in the agreement.

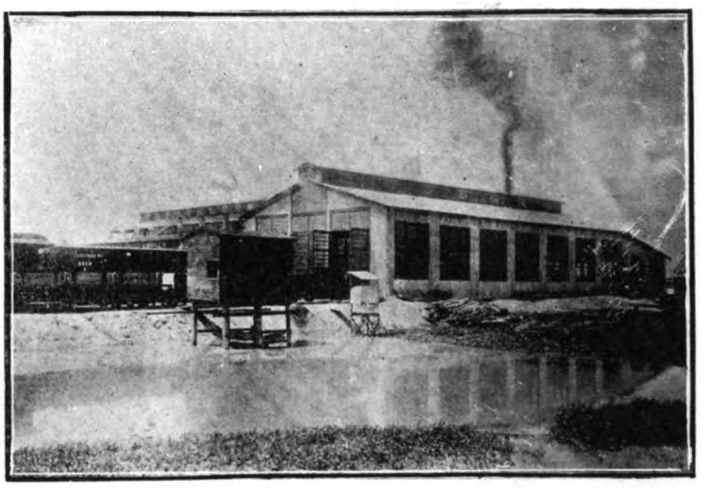
The construction of the line surveyed to Pukow may be made to conform to the proposed line of the British and Chinese Corporation from Pukow to Hsinyang. The two corporations have arrived at an understanding in regard to the development of railway interests north of the Yangtze which is practically an amalgamation.





IMPERIAL CHINESE RAILWAYS.—CANTON HANKOW LINE
BAGGAGE AND MAIL CAR SECOND CLASS PASSENGER COACH





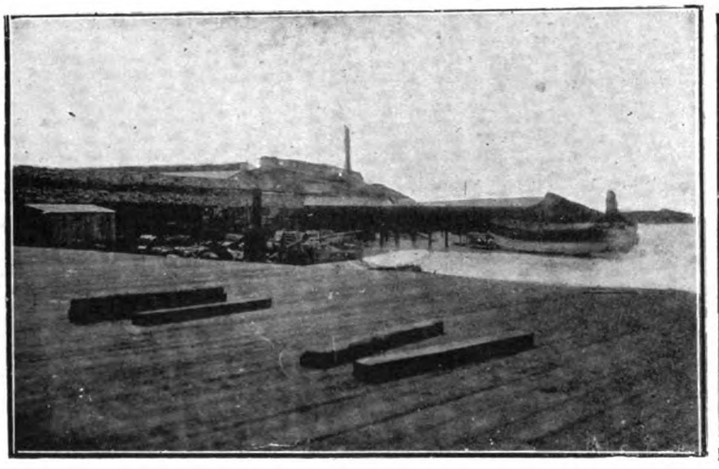
IMPERIAL CHINESE RAILWAYS.—CANTON-HANKOW LINE

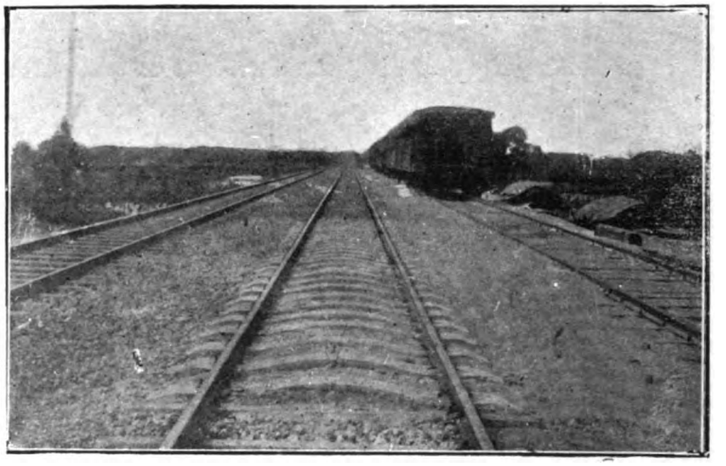
THE SHEK-WAI-TONG YARD

EXTERIOR VIEW OF MACHINE AND CARPENTER SHOP

Before concluding this article, reference to the success attained by Chinese engineers and Chinese enterprise in the direction of railroad building is worthy of extended space. Perhaps no illustration would serve better than the progress made in the construction of the Peking-Kalgan line under the direction and supervision of Taotai Jeme Tien-yow, Ph. B. (Yale), A.M.I.C.E. (London), who is engineer-in-chief of the road. The entire staff of engineers on this construction are Chinese. In fact not a foreigner is employed in any capacity. The result of eleven months' work is shown in the opening and operating of the first section in September, 1906. This section is 32 miles in length. The Nankow pass offers the most difficult engineering problems and the tunneling when completed will be 5,370 feet in length and most of it through hard rock. Besides the tunnels there have been the most difficult cuttings through solid rock, some as deep as 80 feet. These difficulties have been surmounted by the engineer-in-chief wherever met, and the work has been carried on most economically. The *World's Chinese Student's Journal* of October, 1907, has the following to say of the permanent character of the work and the remarkably low figure at which it was accomplished:

"Turning to the more technical side of the work accomplished in this division, I was informed that there are altogether 21 bridges and 17 drains, aggregating 1,352 feet (linear) of openings. All the bridges are constructed of concrete, and it is hardly necessary to add they are all well-made and of a lasting character. In fact, it may be asserted that there is nothing

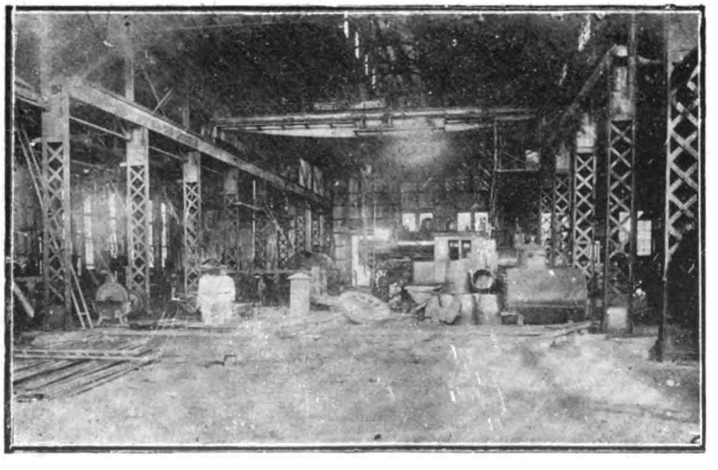


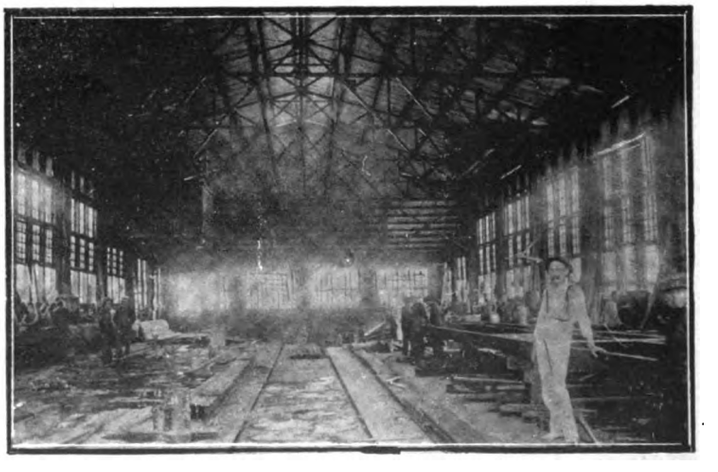


IMPERIAL CHINESE RAILWAYS.—CANTON-HANKOW LINE

TERMINUS AT SHEK-WAI-TONG, CANTON

LOOKING WEST FROM SHEK-WAI-TONG SHOWING CONCRETE TIES

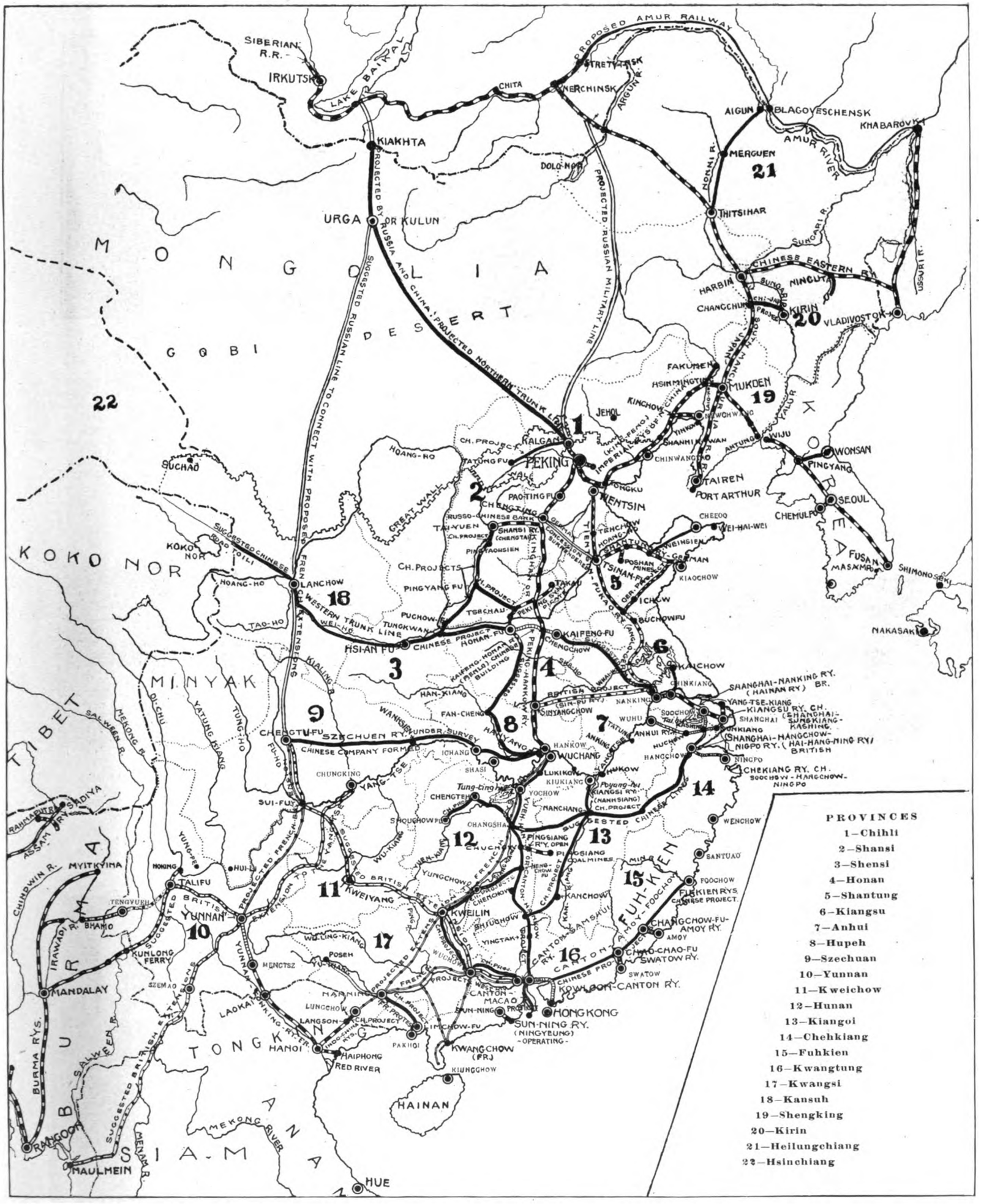




IMPERIAL CHINESE RAILWAYS.—CANTON-HANKOW LINE

MACHINE SHOP

MACHINE SHOP SHOWING FRAME OF 60 FOOT STEEL CAR ON THE RIGHT UNDER CONSTRUCTION


PROVINCES
1—Chihli
2—Shansi
3—Shensi
4—Honan
5—Shantung
6—Kiangsu
7—Anhui
8—Hupeh
9—Szechuan
10—Yunnan
11—Kweichow
12—Hunan
13—Kiangoi
14—Chehkiang
15—Fuhkien
16—Kwangtung
17—Kwangsi
18—Kansuh
19—Shengking
20—Kirin
21—Heilungchiang
22—Hsinchiang
MONGOLIA
GOBI DESERT
KOKO NOR
TIBET
MINYAK
BURMA
ANNAM
SIAM
TONGKING
HAINAN
KOREA
PEKING
TIENTSIN
MUKDEN
HARBIN
CHANGCHUN
KIRIN
VLADIVOSTOK
KHABAROVSK
BLAGOVESCHENSK
IRKUTSK
KIAKHTA
URGA OR KULUN
MERGUEN
THITSINAR
KALGAN
TAIREN
PORT ARTHUR
SEOUL
CHEMULPO
FUSAN
SHIMONOSEKI
NAGASAKI
LANCHOW
HSI-AN FU
KAIFENG-FU
CHENGTU-FU
WUCHANG
HANKOW
NANKING
SHANGHAI
NINGPO
FOOCHOW
AMOY
SWATOW
CANTON
HONGKONG
KWEILIN
KWEIYANG
YUNNAN
TALIFU
MANDALAY
RANGOON
MAULMEIN
HANOI
HAIPHONG
HUE
SUI-FU
CHUNGKING
ICHANG
SHASI
YOCHOW
CHANGSHA
KIUKIANG
WUHU
SOOCHOW
KAIFENG
TAIYUEN
PAOTING FU
TSINAN-FU
TSINGTAU
KIAOCHOW
WEI-HAI-WEI
CHEFOO
TATUNG FU
KALGAN
KINCHOW
NEWCHWANG
WIJU
WONSAN
PINGYANG
SHIMONOSEKI
NAKASAKI
SUCHAO
KOKO NOR
HOANG-HO
GREAT WALL
YANGTSE
SALWEEN R.
MEKONG RIVER
IRRAWADDY R.
CHINDWIN R.
BHAMO
MYITKYINA
MENGTSZ
SZEMAO
KUNLONG FERRY
LAOKAY
LUNGCHOW
LANGSON
PAKHOI
KIUNGCHOW
SUN-NING
MACAO
SWATOW
AMOY
FOOCHOW
SANTUAO
WENCHOW
NINGPO
HANGCHOW
NANKING
SHANGHAI
HANKOW
WUCHANG
CHENGTU-FU
SUI-FU
YUNNAN
TALIFU
KWEILIN
KWEIYANG
CANTON
HONGKONG
HAINAN
RED RIVER
MEKONG RIVER
SUNGARI R.
AMUR RIVER
USSURI R.
NONNI R.
ARGUN R.
LAKE BAIKAL
SIBERIAN R.R.
PROPOSED AMUR RAILWAY
PROJECTED BY RUSSIA AND CHINA
PROJECTED NORTHERN TRUNK LINE
PROJECTED RUSSIAN MILITARY LINE
SUGGESTED RUSSIAN LINE TO CONNECT WITH PROPOSED FRENCH EXTENSION
SUGGESTED CHINESE ROAD TO LI
SUGGESTED BRITISH EXTENSIONS
PROJECTED FRENCH EXTENSION TO THE YANGTSE
SUGGESTED BRITISH EXTENSION TO THE YANGTSE
SUGGESTED CHINESE LINES
CHINESE EASTERN RY.
SOUTH MANCHURIA RY.
KIRIN-CHANGCHUN RY.
KIN-FENG (IMPERIAL) RYS.
TIENTSIN-PUKOW RY. (GERMAN)
TIENTSIN-PUKOW RY. (BRITISH)
PEKING-HANKOW RY.
SHANSI RY. (CHENGTAI)
KIANGSU RY. CH. (SHANGHAI-SUNGKIANG-KASHING)
SHANGHAI-NANKING RY. (HAINAN RY.) BR.
SHANGHAI-HANGCHOW-NINGPO RY. (HAI-HANG-NING RY.) BRITISH
CHEKIANG RY. CH. SOOCHOW-HANGCHOW-NINGPO
KIANGSI RYS. (NANHSIANG) CH. PROJECT
PINGSIANG RY. OPEN
PINGSIANG COAL MINES
FUHKIEN RYS. CHINESE PROJECT
CHANGCHOW-FU-AMOY RY.
CHAO-CHAO-FU SWATOW RY.
KOWLOON-CANTON RY.
SUN-NING RY. (NINGYEUNG) -OPERATING-
SZECHUEN RY. (FUNDS RAISED, SURVEY)
SZECHUEN RY. CHINESE COMPANY FORMED
BRITISH YUNNAN
FRENCH YUNNAN
YUNNAN RYS. CHINESE PROJECT
KAIFENG-HONAN RY. (PEKING) CHINESE BUILDING
HONAN-FU CHINESE PROJECT
RUSSO-CHINESE BANK
GERMAN CONCESSION
BRITISH CONCESSION
CH. PROJECTS
CHENGTU-FU
SZECHUEN RY.
CHUNGKING
YANG-TSE
SUI-FU
YUNNAN
TALIFU
KWEILIN
KWEIYANG
CANTON
HONGKONG
HANOI
HAIPHONG
RED RIVER
MANDALAY
RANGOON
MAULMEIN
HUE
HAINAN
FAR EASTERN REVIEW RAILWAY MAP OF CHINA

PEKING-HANKOW LINE.—THE YELLOW RIVER BRIDGE

of a temporary character about anything on the line. People in this world, however, very often associate exorbitant prices with good quality, and low prices with poor quality of materials and workmanship, believing in their simplicity that they are inseparable concomitants, but the attention of my readers is called to the low price paid in this division for earthwork and materials, which has enabled the construction of a first-class line at an unusually reasonable rate. For earthwork at the Liutsun end, it averages only 17 cents per fong, or, expressed in another way, 4 cents per cubic yard. At the Nankow end, where high embankments have to be made out of boulders, the average price is 27 cents per fong. Prices just as reasonable and low are charged for broken stones for concrete which varies from $1.20 to $2.00 per fong delivered on the spot, and sand, when collected locally, costs only the ridiculously low price of 30 cents per fong. The explanation is not far to seek, for on the Peking-Kalgan Railway, all these materials are supplied to the engineers *directly* by petty contractors, and there is, therefore, no opportunity for big contractors to monopolize the tenders and abuse their privilege by subletting and re-subletting their contracts, a system of 'squeezing' which has rendered engineering work so expensive in other parts of China. Nor are there interpreters of the character as has been reported elsewhere who receive Tls. 50 per mensem and retire after a year or so with half a lakh. There is not a *single* interpreter on the line, for they are not needed, and the absence of middlemen results in economy, unattainable in the nature of things where the personnel and the system are not similar."

In concluding an interesting article on the line, the *Students' Magazine* points with pride to the demonstration of the capacity of Chinese engineers to fulfill the mission of an engineer and to the general success of Chinese enterprise in the construction and operation of the Kalgan line up to the present time and the lack of friction, as conclusive evidence that the Chinese directed by competent Chinese engineers are capable of constructing and operating their own railways. The *Magazine* says:

"In concluding this brief and inadequate description of the Peking-Kalgan Railway, let me call the attention of the reader to the principal features of the line, features which render it conspicuous and distinct from the other lines in China. In the first place, there are no foreigners employed. This in itself should be and is a matter of national pride, but were our engineers unable to fulfill the demands of their profession, it would perhaps be a better arrangement to utilize foreign technical skill. In the present instance, however, there can be no question whatever that all the work of construction is carried out in good engineerlike manner. The materials used are of the best quality, while the structures bear nothing of the temporary character about them. To one who has travelled on the line, it is evident that the buildings too are of first class masonry.

"The second point is the rapidity of the construction. Within the short period of nine months, and it must be remembered that in the north of China three months in winter are frozen and no concreting can be done during those months, the construction train reached Nankow, a distance of 32 miles.

"In the construction of a railway, economy, which must not be confounded with cheapness, must always be kept in view. All railways which have been built and are being built in China must be paid for by our people, and our people are poor. A railway line is not a club house or a private mansion, upon which the owner or owners may expend millions merely for the gratification of their sense of beauty or for the exhibition of their degree of wealth, but is a commercial investment. The amount of capital sunk in it must be commensurate to its power of paying dividends, and in the case of Chinese railways the redemption of the bonds must not for a moment be forgotten. Economy on the Peking-Kalgan Railway has been reduced almost to a science. There is no temptation to spend money recklessly, as no five per cent. commission on every tael spent can enrich the coffers of any corporation. There is no temptation to spend recklessly so as to necessitate the floating of another 'loan,' in which the Chinese Government receives Tls. 93, and the bondholders pay to the floaters Tls. 116. There are no engineers who must have foreign style residences, cement tennis courts, ice-making machines, palatial houseboats, and princely salaries before beginning work. There are no interpreters to browbeat the contractors, to make trouble with the local officials, and to make a pile in little or no time. All contractors deal with the engineers directly, and no squeeze system exists. The figures already given for the prices of materials explain in a large part why a railway built under our own supervision and by our own engineers is so very much more economical.

"Another very important advantage gained is the peaceful condition of coolies during construction, due to the absence of misunderstanding between engineers, the coolies, and the country people. No disturbance of any kind, still less of any rioting, has ever happened, and the work has proceeded so smoothly and quietly that the local officials are never called upon to suppress disorders or punish offenders. There can be no unpleasantness arising through the

interference of foreign consuls and the referring of insignificant incidents to the Ministers in Peking. One and all understand that the railway is a Chinese railway, that our own money is being spent, that the coolies are our own people, though they are coolies, that our officials are officials appointed by the Emperor, and the result is the work proceeds without a hitch of any kind.

"One should think that with Government patronage and official supervision, there could be no strict honesty, that graft, more or less, must penetrate the transactions. Wonderful to say, on this line nepotism is unknown, all employees are rated according to their qualifications, no matter whether a man comes with a recommendation from a Prince or no, and all contracts are by competitive tenders. Indeed, spies, employed by interested or unfriendly parties, are so keenly on the watch that nothing crooked could escape their eyes and be not immediately exposed, were those in charge inclined to be crooked.

"And lastly, student engineers are much encouraged for their work, and receive considerate treatment from their teachers. Steady and conscientious application of their knowledge (nearly all of them have received theoretical training in the engineering department of Tientsin University or elsewhere) ensures rapid promotions and good salaries. Their future is assured, for the demand of Chinese engineers is far above the supply."

The following table prepared by Mr. P. H. Kent and which appears in his interesting volume, **Railway Enterprises in China*, will be found of great value in reviewing the progress made in railway development up to 1907. The figures are approximate and among the railways under the caption "Railways Under Construction" is found the Shanghai-Nanking which was completed last March:

RAILWAYS CONSTRUCTED AND IN OPERATION

RAILWAYS	Length in Miles	Nationality of Capital Employed
Imp. Railways of North China...	588	Chinese and British.
Chinwangtao Branch.....	4	British.
Chinese Eastern.....	1596	Russian.
Peking-Hankow.....	760	Belgian
Canton-Hankow; Canton-Fatshan-Samshui Branch.....	80	American.
Hsiling Branch.....	86	Chinese.
Taokou-Tzechoufu; Taokou-Pashan Section (built by the Peking Syndicate).....	90 5	British.
Pinghsiang-Chuchow.....	66	Chinese.
Shantung Railway; Tsingtau-Chinanfu Branch.....	280	German.
Shanghai-Woosung.....	10.5	Chinese.
Hsinminting-Mukden.....	48	Japanese.
Swatow-Chaochowfu.....	30	Chinese.
	3539	

RAILWAYS UNDER CONSTRUCTION

†Shanghai-Nanking.....	200	British.
Laokai-Yunnanfu.....	280	French.
Macao-Canton.....	130	Sino-Portuguese.
Chenting-Taiyuanfu.....	160	French.
Kaifengfu-Honanfu-Hsianfu Railway; Kaifengfu-Honanfu Section.....	140	Belgian.
Wuhu-Hangchow.....	150	Chinese.
Canton-Kowloon.....	100	British.
Peking-Kalgan.....	125	Chinese.
	1285	

RAILWAYS PROJECTED AND SANCTIONED BY THE CHINESE GOVERNMENT

Canton-Hankow.....	822	Chinese.
Hankow-Chengtu.....	800	Chinese (and failing Chinese, Anglo French).
‡Tientsin-Nanking.....	600	British and German.
Shantung Railway (South Branch)	200	German.
Pukou-Hsinyang.....	270	British.
Soochow-Hangchow-Ningpo.....	200	British.
Taokou-Tzechoufu; Pashan-Tzchoufu Section.....	35	British.
Kiangsi Railway; Kiukiang-Nanchang Section.....	76	Chinese.
Langson-Lungchow.....	46	French.
Burmah-Yangtze.....	700	British.
Kaifengfu-Honanfu-Hsianfu; Honanfu-Hsianfu Section.....	200	Belgian.
Kwangchengtze-Kirin Section ..	75	Chino-Japanese.
Antung-Mukden.....	150	Japanese.
	4174	

SUMMARY

Constructed	Under Construction	Projected	Total
3539	1285	4174	8998

*The historical date for this article was secured largely from this interesting and valuable work.

†Completed March, 1908.

‡Tientsin-Pukow under construction.

ARRIVAL OF TRAIN AT CHUCHOW STATION.—PEKING-HANKOW RAILWAY

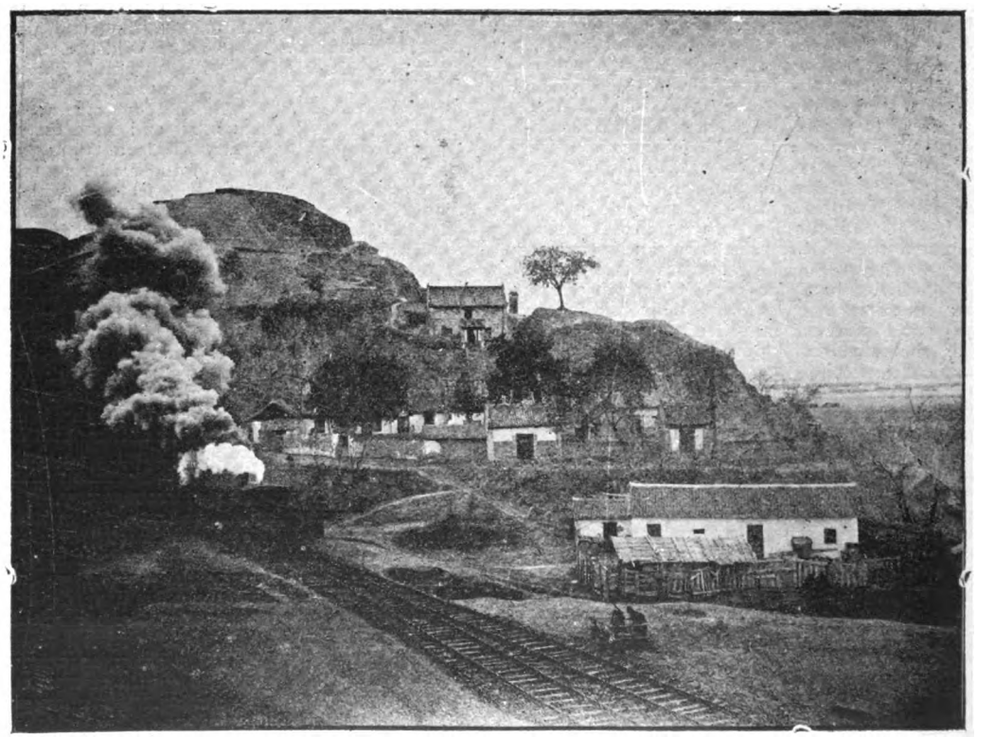
THE TIENTSIN-PUKOW RAILWAY LOAN AGREEMENT.

The following is a translation of the Agreement between the British and Chinese Corporation Ltd. and the Wai Wu Pu signed in Peking on Jan. 13, 1908, or the tenth day, twelfth moon, thirty-third year of Kwang Hsu:—

1.—The Chinese Government hereby sanctions the German and British Banks Syndicate issuing a loan for five million sterling, £5,000,000, at 5% which shall be styled the "Chinese Government five per cent Tientsin-Pukow railway loan."

2.—This loan is to furnish the capital wherewith to construct a Government railway from the vicinity of Tientsin to connect the existing Peking-Shanhaikwan line via Techow, Chinanfu to Ihsien along the southern boundary of Shantung, and this line will hereafter be known as the northern section of the Tsin-Pu or Tientsin-Pukow line; and from Ihsien to Pukow on the bank of the Yangtze opposite Nanking which shall hereafter be known as the southern section of the Tsin-Pu railway. The total distance of the two sections is 1085 kilometers or equal to 2170 Chinese li. The survey of the line will be subject to revision by the Director General.

3.—The capital will be used for the construction of the line, the purchase of the land and rolling stock, and to meet the current working expenses of the line when in operation, also the payment of the interest on the loan while the line is being constructed. The period of construction calculating from the date of commencement is estimated as four years, such commencement to take place within six months of the signing of the agreement, and within this period the syndicate shall place £500,000 at the disposal of the Director General, the money to be drawn by him either in China or from



SOUTH TUNNEL ENTRANCE TO THE YELLOW RIVER BRIDGE.—PEKING-HANKOW RAILWAY

Reproduced from Far Eastern Review.

SHEN TUN-HO, CO-DIRECTOR OF IMPERIAL CHINESE MARINE AND RAILWAY BUREAU

Europe as a first instalment of the loan. The whole or part of this £500,000 shall be deducted with interest from the proceeds of the first sale of the bonds and bear interest not exceeding 6%.

4.—The interest of the loan, which is 5%, shall be payable from the date of issue of the loan and during the time of construction, payable half-yearly. It will be paid by the Chinese Government either from the proceeds of the loan or from other sources as considered advisable.

5.—The loan is made for a term of 30 years, the repayment to commence at the end of ten years, and with the exceptions noted in Art. 6 of this agreement the amortisation to the banks concerned, Deutsch Asiatische Bank, and Hongkong and Shanghai Banking Corporation, Ltd., shall be made in half-yearly instalments out of the revenue of the line or from such other source as the Chinese Government may decide, payment being made in all cases 14 days previous to the date due calculated from the date of issue.

6.—After the expiration of ten years the Chinese Government may if it so desire redeem the outstanding amount of the loan or any part of it any time before the twentieth year on the payment of a premium of 2½%, or £102 10s. on every £100 bond. After the twentieth year redemption can be made without premium, but in any case six months' notice must be given by the Chinese Government, and the method of redemption shall be by the drawing of additional bonds at each ordinary drawing.

7.—The Deutsch Asiatische Bank and the Hongkong and Shanghai Banking Corporation having been appointed representatives for the loan by the British and German companies to receive the half-yearly payments due for amortisation and interest, referred to in Articles 4 and 5, they shall be made, in accordance with the amounts and dates attached to this agreement by the Director General of the Railway, in Shanghai or in Tientsin, in Shanghai or Tientsin Sycee sufficient to meet such payments in gold in Europe, exchange for which shall be settled with the said Banks on the same day. The railway administration may arrange exchange within six months previous to any due date for the repayment of interest and principal. Payment can be made in gold if the Chinese Government have gold funds in Europe, not remitted from China for the purpose, and desire so to use them.

The Hongkong and Shanghai Banking Corporation and Deutsch Asiatische Bank will receive a commission of one quarter per cent for their expenses as Agents.

8.—The Imperial Government of China engages that the interest and principal of this loan shall duly be paid in full, and if the revenue of the Railway or the proceeds of the loan do not suffice for full payment, the Director General shall memorialise the Throne on the amount of deficiency and make payment to the Banks on the date upon which funds are required.

9.—The loan is secured in the following manner:—

1. By lekin and internal revenues of the province of Chihli, 1,200,000 Haikuan Taels a year;

2. By lekin and internal revenues of the province of Shantung 1,600,000 Haikuan Taels a year, and

3. By the revenue of the Nanking Lekin Collectorate 900,000 Haikuan Taels a year and of the Huai-an Native Customs 100,000 Haikuan Taels a year in the province of Kiangsu.

The provincial revenues as above are declared free from all other loans, charges or mortgages.

So long as principal and interest of the loan are regularly paid, there shall be no interference with these provincial revenues. If principal or interest of the loan be in default at due date, then, after a reasonable postponement internal revenues of the three provinces sufficient to provide the amounts above stated shall forthwith be transferred to, and be administered by, the Imperial Maritime Customs, in the interest of the bondholders. And so long as this loan or any part thereof shall remain unredeemed, it shall have first claim over all future loans, on the above mentioned revenues of the three provinces. It is understood and agreed that so long as this loan in unredeemed the Railway shall under no circumstances be mortgaged nor its earnings given as security to any other object.

Should the Government decide to revise the Customs tariff with the view of abolishing likin, this agreement will not oppose such revision except that the likin required as security for the loan must not be decreased or abolished without previous arrangement with the Syndicate and after other source of revenue has been guaranteed.

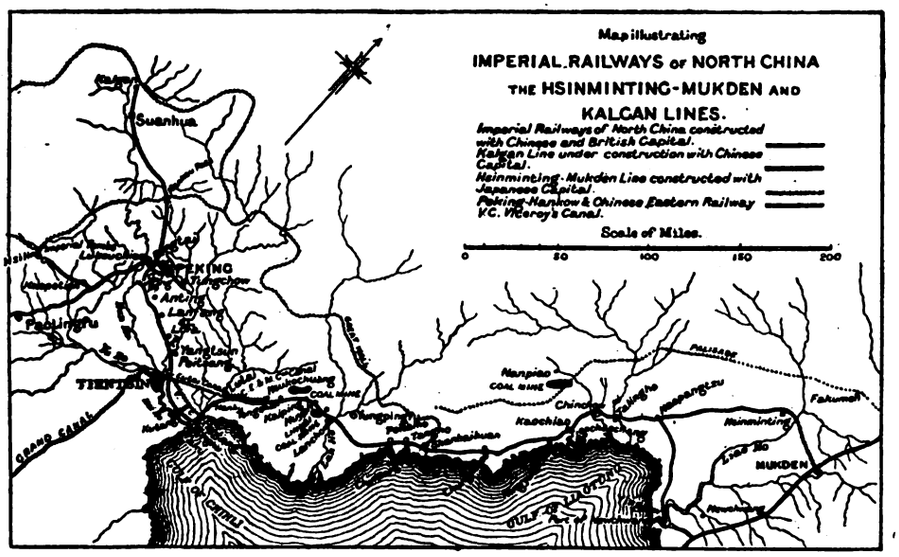
10.—The Syndicate is authorized to issue bonds for the total amount of the loan and the form of the bonds shall be arranged in consultation with the Director General or the Chinese Ministers in London and Berlin. The bonds shall be printed in Chinese and English or Chinese and German and be signed by stamp of the Director General and his seal, the Chinese Minister in London or Berlin shall also put his seal upon each bond with his signature, as a proof that the sale of the bonds is authorized by, and is binding upon the Chinese Government. The representatives of the Syndicate in London and Berlin shall countersign the bonds as agents.

In the event of bonds being lost, or destroyed, the Syndicate shall notify the Director General and the Chinese Minister in London and Berlin, who shall authorize the Syndicate to insert an advertisement in the public newspapers notifying that payment of the same has been stopped according to the customs of the country concerned, and if the bonds are not recovered the Director General or the Chinese Minister in London or Berlin, shall issue duplicate bonds.

11.—All bonds and payments made and received in connection with the service of this loan shall be exempt from all Chinese taxes and imposts during the currency of this loan.

12.—The Syndicate is authorized to issue the regulations of the loan as soon as possible after the signing of this agreement, and the Chinese Government will instruct the Chinese Ministers in London and Berlin to assist the Syndicate in any matters connected therewith and to sign the regulations of the loan.

13.—The loan will be issued in two or more instalments of bonds, the first issue of £3,000,000, as soon as possible after the signing of this agreement and not later than twelve months from the date. The price to the Imperial Chinese Government of the first instalment shall be ninety three per cent of the face value. Further issues shall be effected in time to prevent any delay of the work of



construction, in amounts to be determined by the Director General, and the price payable to the Chinese Government in respect of these series shall be the same rate as to the public, less charges of 5½ points by the Syndicate. Subscriptions will be invited by the Syndicate in Europe and in China both from Chinese and Europeans on equal conditions, preference being given to the application of the Chinese Government if application is made before the issue of the regulations.

14.—The income of the loan shall be paid to the account of Tientsin-Pukow Government Railway with the Hongkong and Shanghai Banking Corporation and the Deutsch Asiatische Bank in China, London or Berlin, as the case may be. Interest at the rate of 4% shall be granted on the portion of this account kept in London and Berlin, and interest on the portion kept in China will be allowed at the Banks' rates for current account or fixed deposits, as may be arranged. In addition to interest and commission the Banks will hold the funds for the Director General, who shall not draw more than £20,000 without giving the Banks ten days notice. Expenditure of funds shall be in amounts to suit the progress of construction of the railway by orders on the Hongkong and Shanghai Banking Corporation and the Deutsch Asiatische Bank respectively, signed by the Managing Director of the Railway or, in his absence, by his representative, and accompanied by his certificates stating the nature and cost of the work to be paid for.

Such amounts as may be required in China may at any time be transferred by the Managing Director, at his discretion, to Shanghai, the transfers being effected through the Hongkong and Shanghai Banking Corporation and the Deutsch Asiatische Bank respectively, and the transferred funds shall remain on deposit with those Banks until required for Railway purposes.

The accounts of the Railway will be kept in Chinese and English in accordance with modern methods, and will be supported by all necessary vouchers. During the period of construction the accounts will be open at any time to an inspector appointed and paid by the Syndicate. His duty will be to certify the due expenditure of the funds in accordance with the provisions of Article 3 of this Agreement. The Railway Administration will publish annually at the end of the financial year a report in the Chinese and English of the working accounts and receipts of the railway, which report may be purchased by the public on application.

15.—If during the time of construction the proceeds of the present loan should not be sufficient to complete the construction and equipment of the line, the deficiency shall be provided, in the first place, from such Chinese funds as may be available so as to permit continuance of the work any balance then uncovered being supplemented by a further foreign loan for the amount required, to be issued by the Syndicate. The interest and other conditions of such supplementary loan will be the same as in the present agreement. If after the completion of the line there should be a balance at credit of the railway account, such unused balance will be transferred to the credit of the interest reserve fund mentioned in Article 21 as a provision for payments for which the Imperial Chinese Government is responsible under this agreement.

16.—If, before the first sale of the bonds any political or financial event should take place causing the prices of Government stocks to fall so as to make the successful issue of the loan impossible on the terms named, the Syndicate shall be granted further extension of time, but not beyond eighteen months from the date of this agreement. If within this time limit the first bonds have not been issued, then this contract shall become null and the money paid by the Syndicate under the provisions of Article 3 shall be by the Chinese Government with interest, but without any other compensation or remuneration whatsoever.

17.—The construction and control of the railway will be entirely in the hands of the Imperial Chinese Government. For the work of the northern and southern sections respectively the Chinese Government will select and appoint fully qualified German and British Chief Engineers, acceptable to the Syndicate. These two Chief Engineers shall be under the orders of the Managing Director, or his duly authorized representative, and will carry out all the wishes of the Railway Administration with regard to the plan and construction of the line. They must pay all due respect to the Director General and the Managing Director. The terms of their respective agreements will be arranged by the Director General on his sole authority.

On the completion of the line the Imperial Chinese Government will administer both sections as one undivided Government Railway and will appoint an Engineer-in-Chief, who during the period of the loan shall be a European, without reference to the Syndicate.

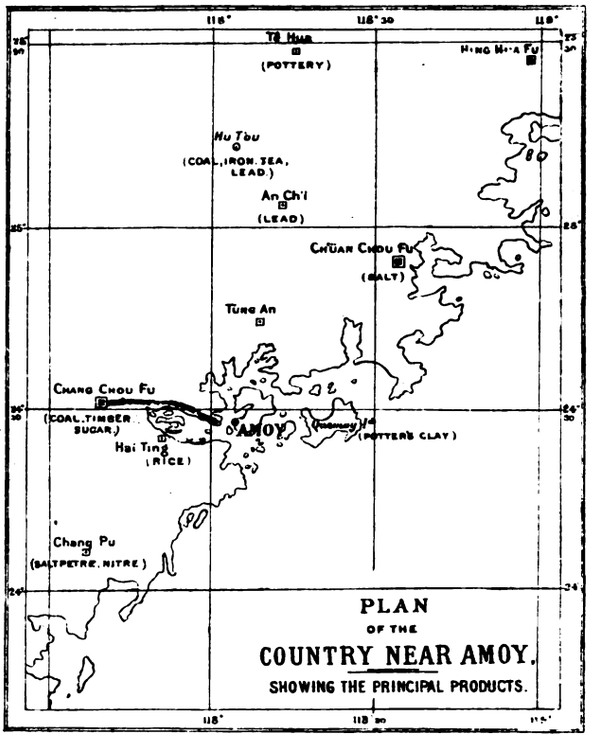
18.—For all important purchases of railway materials tenders shall be called for by the Managing Director; and the Banks and Syndicate as Agents shall purchase the materials required on the terms most advantageous to the Railway, and shall charge the original cost of same with a commission of five per cent. It is understood that no orders for materials shall be executed or any expenditure incurred without due authorization by the Managing Director.

The Railway Administration shall have the right to reject on arrival in China materials which do not come up to specifications. At equal rates and qualities goods of German and British manufacture shall be given preference over other goods of foreign origin for the northern and southern sections respectively. The Railway Administration reserves the right, while paying the above stipulated commission to the said Agents in respect of all purchases of foreign materials, to avail itself of the services of other Agents in China or abroad should it see fit to do so.

No commission shall be paid to the Agents except as above provided; but it is understood that the Railway Administration shall provide out of Railway funds for the remuneration of Consulting Engineers whenever their services are engaged.

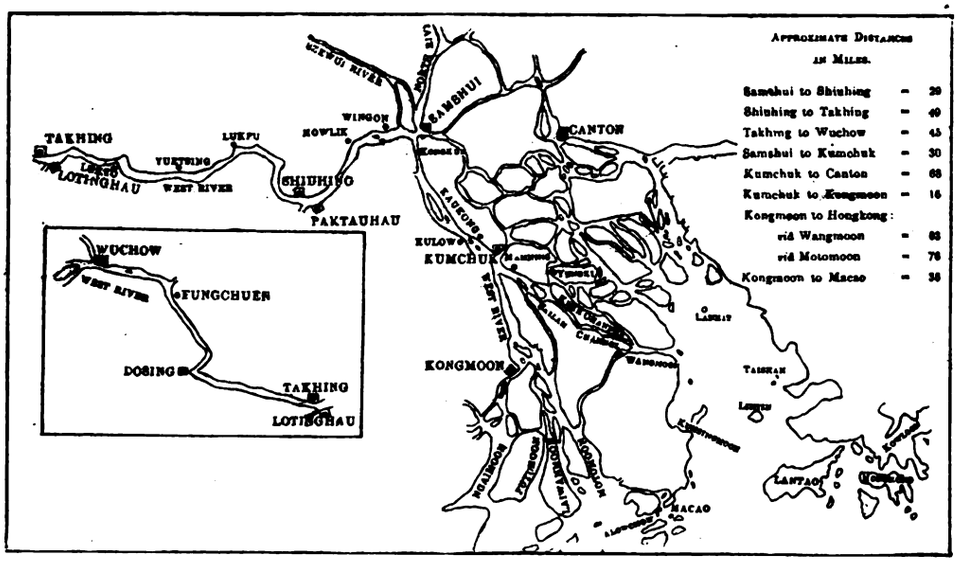
With a view to the encouragement of Chinese industries, preference will be given, at equal prices and qualities, over British, German or other foreign goods to Chinese materials, and goods manufactured in China. No commission will be paid on purchases of such materials and goods.

19.—Branch lines in connection with the railway line mentioned in this Agreement may



be built by the Imperial Chinese Government with funds at their disposal from Chinese sources, if thought advisable, and if foreign capital is required preference will be given to the Syndicate.

20.—The Syndicate is granted the right to retain two hundred thousand pounds sterling (£200,000) out of the first issue of the bonds instead of 20% of the profits of the railway as first proposed. No further payment in respect of profits will be allowed on any subsequent series of the loan, or on any supplementary loan.



WEST RIVER DELTA

21.—After payment of interest and repayment of principal of the loan for any year, the Railway Administration will deposit with the Deutsch Asiatische Bank and the Hongkong and Shanghai Banking Corporation in Shanghai or Tientsin any surplus revenue of the railway line for that year up to the amount required to pay the following year's instalments of interest on the loan; the rate of interest on the deposit being arranged with the Banks from time to time with due regard to the conditions of the market.

22.—The Deutsch Asiatische Bank and the Syndicate may transfer or delegate all or any of their rights, powers, and discretions thereunder to any German or British Company, Directors or Agents with power of further transfer subject to the approval of the Director General.

23.—This Agreement is signed under authority of an Imperial Edict dated the tenth day of the Twelfth Moon of the 33rd year of Kuang Hsu, corresponding to the 13th day of January one thousand nine hundred and eight, Western Calendar, which has been officially communicated to the Ministers of Great Britain and Germany in Peking by the Wai Wu Pu.

24.—Five sets of this Agreement are executed in English and Chinese, three sets to be retained by the Imperial Chinese Government and two by the Syndicate. In any case of dispute the English text will be taken as correct.

SHANGHAI-HANGCHOW-NINGPO LOAN AGREEMENT.—This Agreement is made at Peking on the fourth day of the second month of the thirty-fourth year of Kuang Hsü, corresponding to the sixth day of March, 1908, and the contracting parties are:—

The Waiwupu (Board of Foreign Affairs) and

The Yuchuanpu (Board of Communications), acting under the authority of an Imperial Decree, of the one part, and the British and Chinese Corporation, Limited (hereinafter called "The Corporation") of the other part.

Article 1. The Imperial Government of China authorizes the Corporation to issue a five per cent. gold loan for the amount of £1,500,000 sterling. The loan shall be of the date on which it is issued to the public and shall be called "The Imperial Chinese Government five per cent. Shanghai-Hangchow-Ningpo Railway Loan."

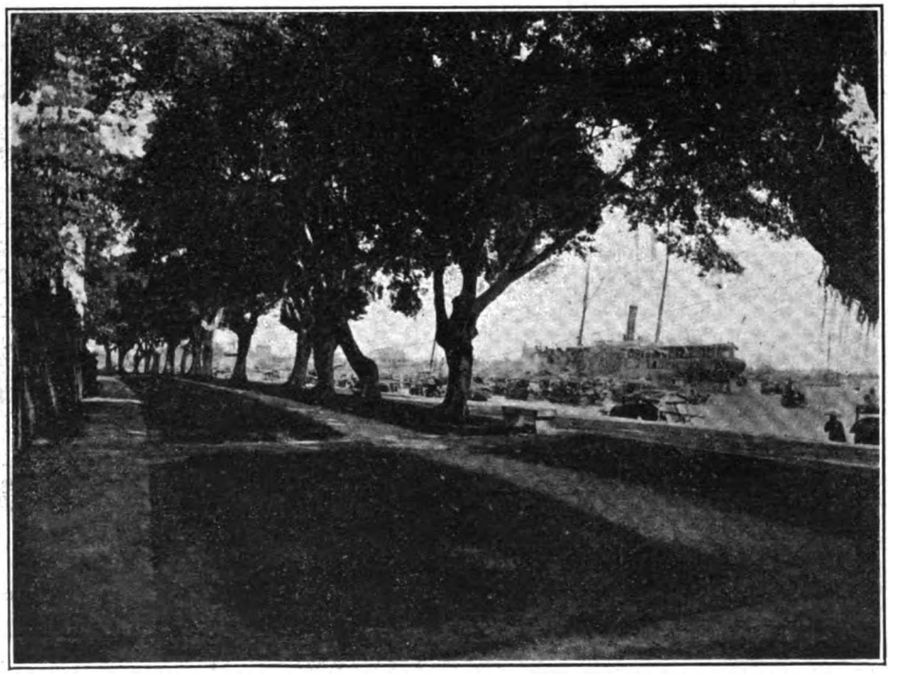
Article 2.—The loan is designed to provide capital for the construction of a railway line (hereinafter called "the railway") from a point connecting with the Shanghai-Nanking Railway at or near Shanghai in Kiangsu to the cities of Hangchow and Ningpo in Chekiang. The railway shall follow a line from Shanghai through Fengchingchen to Kahsingfu; and thence to Hushu and Hangchow; and thence from Chiangkan to Ningpo, on which line certain construction work has already been locally undertaken under authority of the Imperial Chinese Government.

The survey line shall be open to revision by the Yuchuanpu.

Article 3.—The Chinese Government guarantees that the capital so provided shall be solely devoted to the construction of the railway including the purchase of rolling stock and other equipment and to the working of the line during construction; it is understood, however, that the cost of the land required for the railway and the payment of interest on the Loan during construction are not to be met out of Loan funds but will be paid by the Imperial Chinese Government from other sources. It is understood that the railway will be completed within three years from the date of signature of this Agreement; and that within a period of six months from that date the Corporation shall notify the Yuchuanpu that the sum of £100,000 has been placed at their disposal, to be held in Europe or remitted to China as they may direct, as a first instalment on account of the proceeds of the Loan. This amount of £100,000, or whatever portion thereof is actually advanced, together with interest thereon not exceeding a charge of six per cent per annum, shall be deducted from the proceeds of the sale of the bonds.

Article 4.—The rate of interest for the Loan shall be five per cent per annum on the nominal principal and shall be paid to the bond-holders half-yearly. The said interest shall be calculated from the date on which the Loan is issued to the public and shall be paid by the Imperial Chinese Government during the time of construction from Chinese sources, and afterwards, in the first place out of the revenues of the railway, and should these be insufficient then from the surplus earnings of the Imperial Railways of North-China (excluding the section of the Hsinmintun-Mukden line to the East of the Liao River) and thereafter, if necessary, from such other revenues as the Chinese Government may see fit to use for the purpose, in half-yearly instalments according to the amounts specified in the schedule attached to this Agreement and fourteen days before their due dates, Western Calendar as calculated half-yearly from the date on which the Loan is issued to the public.

Article 5.—The term of the Loan shall be thirty years. Repayment of principal shall commence after the expiry of ten years from the date of the Loan, and, except as provided in Article 6 hereinafter, shall be made by yearly amortisation to the Hongkong and Shanghai Banking Corporation in half-yearly instalments, out of the revenues of the railway, and should these be insufficient, then from the surplus earnings of the Imperial Railways of North-China (excluding the section of the Hsinmintun-Mukden line to the East of the Liao River) and thereafter, if necessary, from such other revenues as the Imperial Chinese Government may think fit to use for the purpose, according to the amounts specified in the schedule attached to this Agreement, and fourteen days before their due dates, Western Calendar, as calculated half-yearly from the date on which the Loan is issued to the public.



LOOKING DOWN THE BUND.—BRITISH CONCESSION, SHAMEEN, CANTON

Article 6.—If at any time after the lapse of ten years from the date of the Loan, the Imperial Chinese Government should desire to redeem the whole outstanding amount of the Loan, or any portion of it, not yet due for repayment in accordance with the schedule of repayments hereto attached, it may do so until the twentieth year by payment of a premium of 2½ per cent on the face value of the bonds (that is to say, by payment of £102.10|- for each £100 bond) and after the twentieth year, without premium; but in each and every case of such extra redemption the Imperial Chinese Government shall give six months' notice in writing to the Corporation, and such redemption shall be effected by additional drawings of bonds, to take place on the date of an ordinary drawing as provided for in the prospectus of the Loan.

Article 7.—The Hongkong and Shanghai Banking Corporation having been appointed by the British and Chinese Corporation, Limited, Agents for the service of the Loan, the half-yearly payments due for amortisation and interest, referred to in Articles 4 and 5 shall be made in accordance with the amounts of the schedule attached to this Agreement, and fourteen days before their due dates, as fixed by Articles 3 and 5, to the Hongkong and Shanghai Banking Corporation by the Yuchuanpu or its duly appointed representative, who shall hand to the said Bank in Shanghai, fourteen days before the said due dates, funds in Shanghai sycee sufficient to meet such payments in sterling in London, exchange for which shall be settled with the Bank; the Yuchuanpu, or its duly appointed representative, having, however, the option of settling exchange with the Bank at any date or dates within six months previous to any due date for the repayment of interest and principal. These payments may, however, be made in Gold if the Imperial Chinese Government should happen to have Gold funds "bona fide" at their disposal in Europe, not remitted from China for the purpose, and desire so to use them.

In reimbursement of expenses connected with the payment of interest and the repayment of principal of the Loan, the Hongkong and Shanghai Banking Corporation will receive a commission of one quarter per cent. on the annual Loan service.

Article 8.—The Imperial Government of China hereby engages that the interest and principal of this Loan shall duly be paid in full, and should the revenues of the Railway, together with the surplus earnings of the Imperial Railways of North-China (excluding the section of the Hsinmintun-Mukden line to the East of the Liao River), not be sufficient to provide for the due and full payment of interest and repayment of principal, the Yuchuanpu shall memorialize the Throne and the Imperial Government of China will thereupon make arrangements to ensure that the amount of deficiency shall be met from other sources and handed over to the Bank at the date upon which funds are required to complete full payment of interest and repayment of principal.

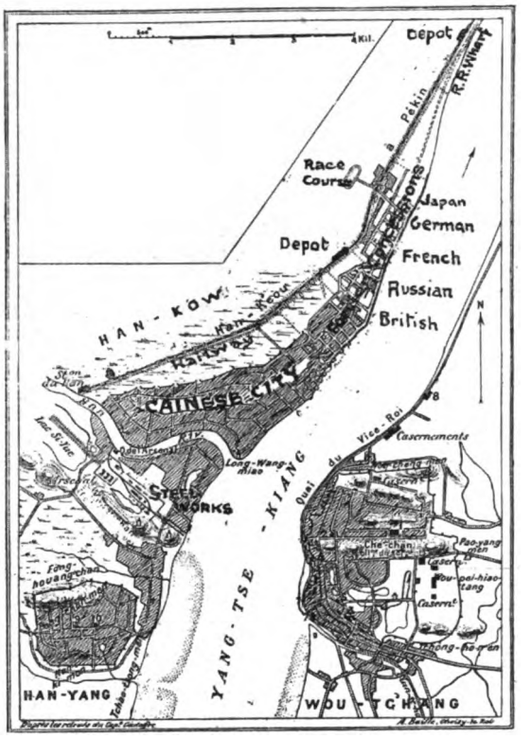
Article 9.—The Loan is hereby secured upon the surplus earnings of the Imperial Railways of North-China (excluding the section of the Hsinmintun-Mukden line to the East of the Liao River), that is to say, that after deducting from the net earnings of that railway the amounts required to meet the payments of interest and repayments of principal due in terms of the Agreement of October 10, 1898 (Kuang Hsü 24th year, 8th moon, 25th day) to the bondholders of the Imperial Chinese Government Loan of that year, then the payment of interest and repayment of principal of the present Loan shall be a first charge upon the said surplus earnings of the Imperial Railways of North-China (excluding the section of the Hsinmintun-Mukden line to the East of the Liao River) and no deductions or payments shall be made from the earnings of the said railway other than those required to meet the obligations stated in the Loan Agreement of October 10, 1898 (Kuang Hsü 24th year, 8th moon, 25th day) until an amount sufficient to pay the next half-yearly instalment of interest and principal of the present Loan shall have been placed on deposit with the Hongkong and Shanghai Banking Corporation as security for the due payment of the same.

Article 10.—The Corporation is hereby authorized to issue to subscribers to the Loan, bonds for the total amount of the Loan for such amounts as may appear advisable to the Corporation. The form of the bonds shall be settled by the Corporation in consultation with the Yuchuanpu or its duly authorized representative or with the Chinese Minister in London. The bonds shall be engraved in Chinese and English; they shall bear the facsimile of the signature of the Yuchuanpu's duly authorized representative and of his seal of office (in order to dispense with the necessity of his signing them all in person) but the Chinese Minister in London shall, previous to the issue of any bonds, put his seal upon each bond with a facsimile of his signature as a proof that the issue and sale of the bonds are duly authorized by, and binding upon, the Imperial Chinese Government, and the representative of the Corporation in London shall countersign the bonds as agents for the issue of the Loan.

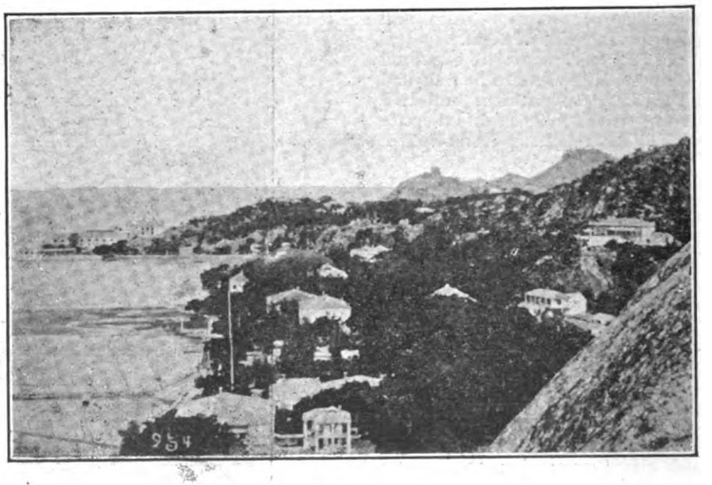
If any of the bonds herein mentioned are lost or destroyed a reissue of any thereof is to be made in the amounts respectively called for by such lost or destroyed bonds but proper proof of the loss or destruction must be given in the usual form to the Corporation and the Chinese Minister in London for examination and record and the requisite guarantee is to be obtained by the Corporation from the respective claimants concerned, who shall defray all expenses connected with such reissue of bonds lost or destroyed and who under the said guarantee shall undertake to indemnify the Imperial Chinese Government and or the Corporation for any loss sustained by reason of the issue of bonds in the place of bonds lost or destroyed.

Article 11.—All bonds and coupons and payments made and received in connexion with the service of this Loan shall be exempt from all Chinese taxes and imposts during the currency of this Loan.

Article 12.—All details necessary for the prospectus and connected with the payment of the interest and repayment of the principal

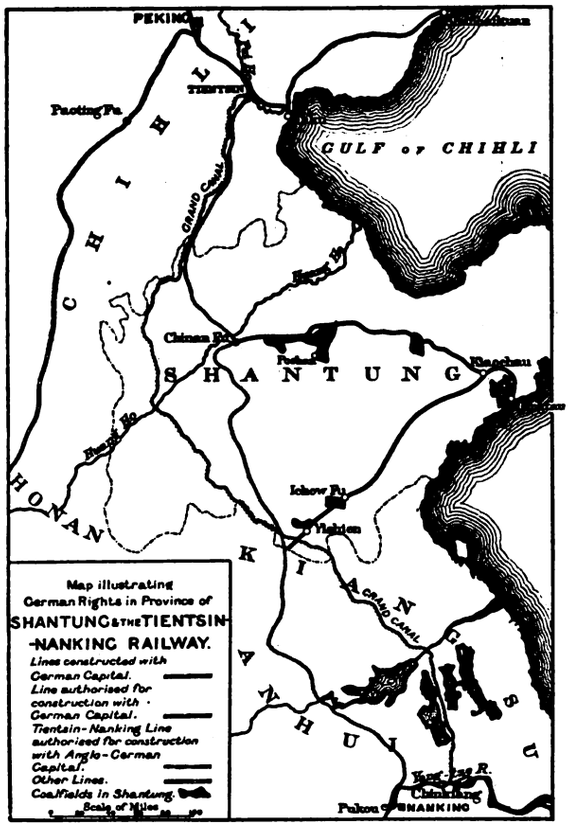


MAP OF HANKOW, WUCHANG, AND HANYANG SHOWING LOCATION OF HANYANG IRON AND STEEL WORKS



KAKCHIO, FOREIGN SETTLEMENT, SWATOW. VIEW FACING WEST-CHINA SUGAR REFINERY ON THE POINT

of this Loan not herein explicitly provided for shall be left to the arrangement of the Corporation in consultation with the Chinese Minister in London. The Corporation is hereby authorized to issue the prospectus of the Loan as soon as possible after the signing of this Agreement and the Imperial Government will instruct the Chinese Minister in London to co-operate with the Corporation in any matters requiring conjoint action and to sign the prospectus of the Loan.



Article 13.—The Loan shall be issued to the public in one series of bonds, as soon as possible after signature of this Agreement and not later than twelve months from the date thereof. The price to the Imperial Chinese Government shall be 93% of the nominal value of the bonds. Subscriptions will be invited by the Corporation in England and in China both from Chinese and Europeans on equal conditions, preference being given to the application by the Chinese Government provided that such application be made before the issue of the prospectus to the public.

Article 14.—The proceeds of the Loan shall be paid to the credit of the Yuchuanpu with the Hongkong and Shanghai Banking Corporation in China or London as the case may be. Payments of the Loan proceeds into the credit of this account shall be made in instalments and on dates conforming to the conditions allowed to the subscribers to the Loan. Interest at the rate of four per cent per annum shall be granted on the credit balance of the portion of this account kept in London; and interest on the credit balance of the portion kept in China will be allowed at the Bank's rates for current account or fixed deposits, as the case may be, to be arranged.

The Bank will hold the net proceeds of the Loan with accrued interest to the order of the Yuchuanpu, or its duly authorized representative, who, in ordering payment of any sums exceeding £20,000 shall give notice to the Bank ten days before the day on which they are required. Requisitions on the Loan funds will be drawn in amounts to suit the progress of construction of the Railway by orders on the Hongkong and Shanghai Banking Corporation, signed by the Yuchuanpu or its duly authorized representative, and accompanied by his certificates or those of the said Board stating the nature and cost of the work to be paid for.

Such amounts as may be required for expenditure in China may be transferred under the instructions of the Yuchuanpu, at their discretion, to Shanghai, the transfers being effected through the Hongkong and Shanghai Banking Corporation, and the transferred funds shall remain on deposit with that Bank until required for railway purposes.

The Yuchuanpu will cause to be published annually, upon the close of the Railway's financial year, a report in the Chinese and English languages showing the working accounts and traffic receipts of the Railway, which report shall be procurable by the public on application.

Article 15.—If, during the time of construction the net proceeds of the present Loan with accrued interest should not be sufficient to complete the construction and equipment of the Railway line, the amount of deficiency shall be provided in the first place from such Chinese funds as may be available so as to permit of the uninterrupted continuance of the work of construction, any balance then uncovered being supplemented by a further foreign loan for the amount required, to be issued by the Corporation. The interest and other conditions of such supplementary Loan will be the same as in the present agreement, and the price payable to the Imperial Chinese Government will be the actual rate of its issue to the public less flotation charges of 5½ points retainable by the Corporation, that is to say, £5. 10|- for every £100 bond issued.

If, after completion of the line, there should remain a balance of Loan funds at the credit of the Railway account, such unused balance shall be at the disposal of the Yuchuanpu to be used either for the purpose of paying interest on the Loan or for the equipment of the Railway, or for the construction and equipment of branch lines beneficial to the Railway.

Article 16.—If, before the publication of the prospectus for the issue of the Loan, any political or financial crisis should take place by which the market and the prices of existing Chinese Government stocks are so affected as to render in the opinion of the Corporation the successful issue of the Loan impossible on the terms herein named, the Corporation shall be granted further extension of time, but not beyond eighteen months from the date of this Agreement, for the performance of their contract. If, within this time limit the Loan shall not have been issued this contract shall become null and void, and any advances made by the Corporation under the provisions of Article 3 shall be repaid by the Chinese Government with accrued interest but without any other compensation or remuneration whatsoever.

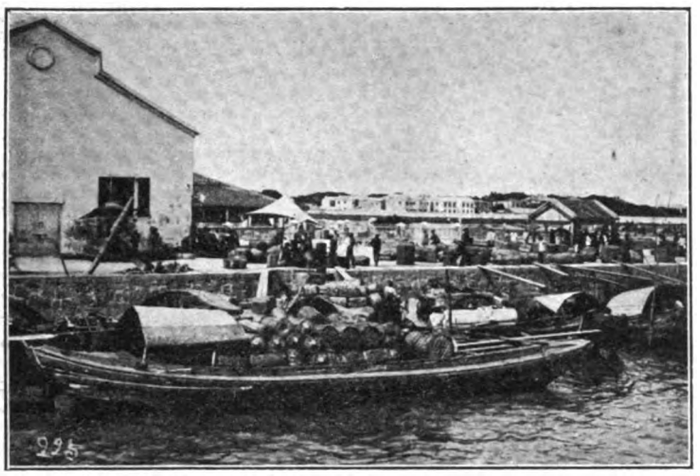
Article 17.—The construction and control of the Railway will be entirely vested in the Imperial Chinese Government. For the work of construction the Yuchuanpu, or its duly appointed Managing Director, will select and appoint a British Chief Engineer, who shall be a professional man of established reputation to be selected either in England or from the staff of one of the existing Chinese Government Railways. The Chief Engineer will be under the orders of the Managing Director, or, in his absence, of his duly authorized representative. In his general conduct he shall pay all due respect to the Managing Director. The terms of the Chief Engineer's agreement will be arranged by the Yuchuanpu or its duly appointed Managing Director.

Whenever appointments are to be made or functions are to be defined of the technical employees on the Railway staff, as well as in the case of their dismissal, the Managing Director, or in his absence, his duly appointed representative, will act in consultation with the Chief Engineer and, in the case of disagreement, the matter will be referred to the Yuchuanpu, whose decision shall be final. After completion of construction the Imperial Chinese Government will retain the services of an Engineer-in-Chief who during the period of the Loan shall be a British subject.

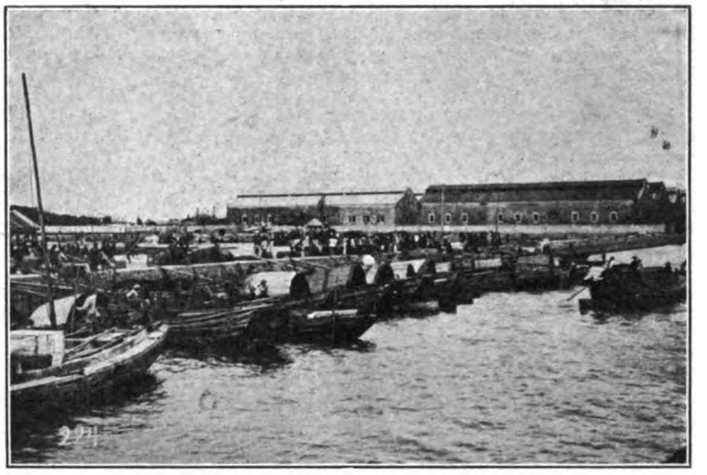
Article 18.—During the construction of the Railway the Corporation will act as its Agents for the purchase of all materials, plant and goods required to be imported from abroad. For all important purchases of such materials, tenders shall be called for by the Managing Director; in the case of all tenders, indents and orders for the importation of goods and materials required on the terms most advantageous to the Railway. It is understood that no orders for materials shall be executed or any expenditure incurred without due authorization by the Managing Director.

As remuneration for its services as Agents of the Railway during construction, the Corporation shall receive the sum of £35,000, half of which shall be paid when the construction work is half completed but not later than eighteen (18) months from the date of this agreement, and the other half upon completion of the line. This amount shall be regarded as commutation of all commissions to which the Corporation and its Agents would properly be entitled and of payments for all services rendered in the construction and equipment of the Railway in respect of the present Loan; but in the event of a further Loan being required under the provision of Article 15 hereinabove, then a further payment of commuted commission, proportionate to the amount of such supplementary Loan and calculated at the same rate as the commutation hereinabove mentioned, shall be made to the Corporation as commutation of its commission for all services in respect of construction.

In return for this commuted commission the Corporation as Agents shall be prepared to superintend the purchase of all foreign materials required for the construction and equipment of the Railway which shall be purchased in the open market at the lowest rate obtainable, it being understood that all such materials shall be of good and satisfactory quality. At equal rates and qualities goods of British manufacture shall be given preference over other goods of foreign origin. The Managing Director shall have the right, while paying the above stipulated commutation of commission to the said Agents, in respect of all purchases of foreign materials, to avail himself of the services of other Agents in China or abroad should he see fit to do so.



THE BUND AT SWATOW.—CUSTOMS WHARF



THE BUND AT SWATOW

Original invoices and inspectors' certificates are to be submitted to the Managing Director; all return commissions and rebates of every description shall be credited to the Railway; and all purchases made by the Agents on behalf of the Railway shall be supported by manufacturers' original invoices and inspectors' certificates.

No commission shall be paid to the Agents except as above provided; but it is understood that the Yuchuanpu or its duly authorized representative shall provide out of Railway funds for the remuneration of Consulting Engineers whenever their services are required for general assistance and advice or for the inspection abroad of materials requiring supervision of technical experts.

With a view to the encouragement of Chinese industries, preference shall be given at equal prices and qualities, over British and other foreign goods, to Chinese goods and materials manufactured in China. No commission will be paid on purchases of such materials and goods.

It is understood and agreed that after the construction of the line is completed, the Corporation will be given the preference for such Agency business during the currency of the Loan for the supply of foreign materials as may be required for the Railway, on terms to be hereafter mutually agreed upon.

Article 19.—Branch lines in connexion with the Railway mentioned in this Agreement, that may appear profitable or necessary later on, shall be built by the Imperial Chinese Government with funds at their disposal from Chinese sources, and if foreign capital is required, preference will be given to the Corporation.

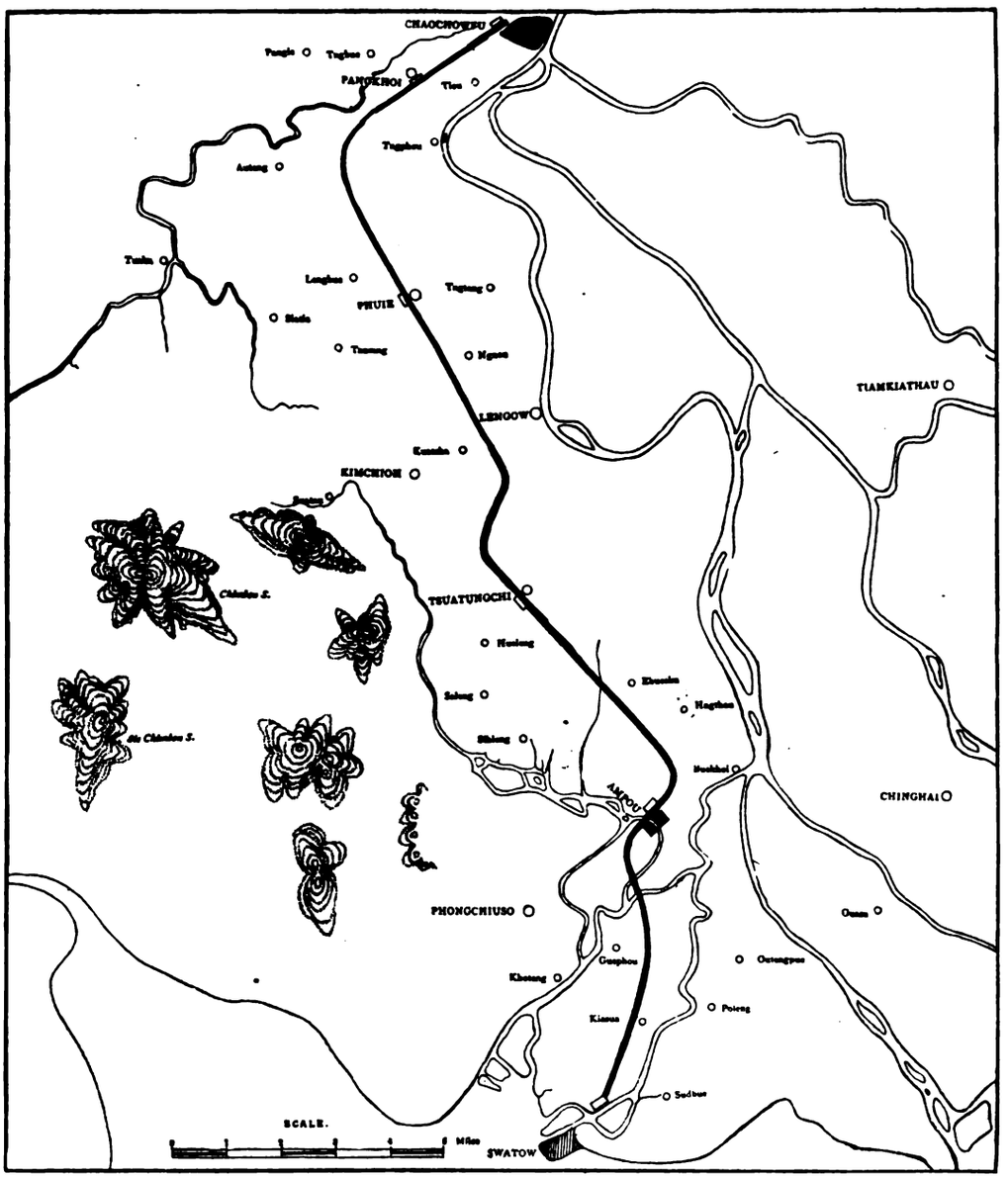
Article 20.—By the preliminary agreement dated October 15, 1898 (Kuang Hsü 24th Year, 9th Moon, 1st Day) participation of twenty per cent of the net profits of the Railway had been promised to the Corporation in remuneration for their general responsibility and services. In commutation of this participation in net profits, the Corporation is granted the right to retain £67,500 out of the proceeds of the Loan in instalments and on dates in proportion to, and based on, the terms of subscription to the Loan, as stated in the prospectus. No further payment in respect of commutation of profits will be allowed on any supplementary Loans.

Article 21.—After payment of interest and repayment of principal of the Loan for any current year, the Yuchuanpu shall deposit with the Hongkong and Shanghai Banking Corporation in Shanghai any surplus of the net revenue of the Railway line for that year up to the amount required to pay the following year's instalments of interest on the loan; the rate of interest on the deposit being arranged with the Bank from time to time with due regard to the conditions of the market.

Article 22.—The Corporation may, subject to all its obligations under this Agreement, transfer or delegate all or any of its rights, powers or discretions thereunder to any British Company, Director or Agent, with power of further transfer and subdelegation, such transfer, subtransfer, delegation or subdelegation, to be subject to the approval of the Yuchuanpu.

Article 23.—This Agreement is signed under authority of an Imperial Decree of this date which has been officially communicated to the Minister of Great Britain in Peking by the Waiwupu.

Article 24.—Three sets of this agreement are executed in English and Chinese, two sets to be retained by the Imperial Chinese Government and one by the Corporation; in the event of any doubt arising regarding the interpreta-



Reprinted from the Far Eastern Review

MAP OF THE SWATOW-CHAOCHAOW-FU RAILWAY

HIS EXCELLENCY CHUNG MUN YEW

MANAGING DIRECTOR OF THE CHINA MERCHANTS STEAM NAVIGATION COMPANY AT SHANGHAI AND OF THE SHANGHAI-NANKING RAILWAY—A GRADUATE OF YALE UNIVERSITY AND FORMER SECRETARY OF LEGATION AT WASHINGTON AND CONSUL-GENERAL AT HAVANA AND MANILA. PROBABLY THE MOST POPULAR CHINESE DIPLOMAT AMONG AMERICANS

tion of the contract the English text shall rule.

Signed at Peking by the contracting parties this fourth day of the second month of the thirty-fourth year of the Emperor Kuang Hsü, being the sixth day of March nineteen hundred and eight.

Signed,

HU HUI-TE,
LIANG SHING-YI,
KAO ERH-CH'IEN.

[Seal of Waiwupu].

For the British and Chinese Corporation, Ltd.,

J. O. P. BLAND,
Representative in China.

(*) PRELIMINARY AGREEMENT BETWEEN THE HONGKONG AND SHANGHAI BANKING CORPORATION AND DIRECTOR-GENERAL HU, RESPECTING THE PEKING-NEWCHWANG RAILWAY LOAN.

This is a preliminary Agreement made between his Excellency Hu, Governor of Peking and Administrator-General of the Imperial Railways of North China within and without the Great Wall, hereinafter called the Administrator-General, of the one part: and the Hong Kong and Shanghai Banking Corporation, representing a British Syndicate, hereinafter called the Syndicate, of the other part.

1.—The Syndicate is hereby authorized by the Administrator-General to make arrangements to float and issue, on behalf of the Railway Administration, on the best terms obtainable on the market, a sterling loan for the equivalent of about (16,000,000 taels), for the construction of railway line from Chung-hou-sou to Hsin Ming-tien, and a branch line to Ying-tzu, and for the redemption of existing loans to the Tientsin-Shan-hai-kuan and Tientsin-Lu-kou-chiao lines.

2.—The security for the loan shall be the permanent way, rolling-stock, and entire property, together with the freight and earnings of the existing lines between Peking, Tientsin, Tang-ku, and Chung-hou-sou, and also of the proposed new lines when constructed, in addition to the rights of mining coal and iron, which will be retained by the Railway Administration on each side of the proposed new lines, for a distance to be determined. In the event of default or arrears in payment of interest or payments of principal, the said railway lines and mines shall be handed over to representatives deputed by the Syndicate, to manage them on their behalf, until principal and interest of the loan are redeemed in full, when the management will revert to the Railway Administration.

It will, however, be provided that if such arrears are for a small sum, and it appears desirable to the Syndicate to extend the due date of their payment for a term not exceeding three months, it shall be open to the syndicate to do so.

In the event of any special circumstances arising, necessitating the introduction of important changes by the management aforesaid, these changes shall be effected in consultation with the Administrator-General, and in the best interests of the railway. In the case of war or famine, troops and grain will be transported over the line on terms to be arranged hereafter.

No further loan, charge, or mortgage shall be charged on the security named above until this loan is redeemed.

3.—During the currency of the loan the principal members of the railway staff shall be capable and experienced Europeans, who shall be, as at present, appointed by the Administrator-General of the Railway, and may be, in the event of their misconduct or incompetency, dismissed, after consultation with the Chief Engineer. If there are Chinese, with sufficient engineering or traffic experience, they may be appointed as well as Europeans. Should it be necessary to appoint a new Chief Engineer, such appointment shall be made in consultation with the Syndicate.

In addition to above, a capable and experienced European Railway Accountant shall be appointed to inspect all the accounts of the railways.

All receipts and earnings of the lines herein specified shall be paid into the credit of the Railway Administration with the Hong Kong and Shanghai Banking Corporation, Tientsin, together with 50,000 taels annually payable under the Board of Revenue's arrangement, approved by the Throne, by each of the provinces of Shansi, Shensi, Honan, and Anhui, for railway purposes for ten years.

All expenses of repairing and maintaining lines will be paid from this account, the remainder of which shall then be charged with the service of this loan.

4.—The rate of interest, price, term of years, and other particulars shall be left to the Syndicate to arrange, on the best terms possible, on the market, when the moment appears favorable for floating the loan. Instalments of proceeds will be arranged as far as possible to suit the progress of construction and the requirements of the Administrator-General, interest being calculated from the date of such payments. The loan will be redeemable by annual drawings to be scheduled in the final agreement. Besides the drawings so scheduled the Administrator-General may from time to time, on giving due notification to the Syndicate, call for extra drawings to be held, bonds so drawn being redeemed by the Railway Administration at 20 per cent. premium on their par value.

5.—If it shall be found that the loan cannot be floated without the introduction of some special attraction, the Administrator-General shall memorialise the Throne, recommending that a concession of mining rights be granted to the Syndicate at a point or points on the lines, and on terms to be arranged with the Syndicate on the basis of the Mining Regulations newly established by the Tsung-li Yamen. The requests of the Syndicate will be confined to mines within a distance of 5 li of the railway.

6.—The date of issue of this loan shall be left to the discretion of the Syndicate, to be fixed in accordance with the state of the market, but should it be found impossible to issue it before the 1st day of October next, the Syndicate will arrange to advance to the Administrator-General, on or about that date, an instalment of about 2,000,000 taels on account of, and repayable out of the proceeds of the loan when floated. The terms of this advance shall be left to the arrangement of the Syndicate on the best terms obtainable, interest not to exceed the rate of 5½ per cent. per annum, and the Syndicate shall be authorized to issue temporary bonds for the amount if required.

7.—For the satisfaction of the investing public who are unacquainted with China a satisfactory report will be required from District Engineer, Mr. J. Ginnell, as to the condition and earning power of the old lines, and as to the route, prospects, and mineral wealth of the new lines to be constructed, and Mr. Ginnell shall be instructed by the Administrator-General to proceed to London as soon as possible after the signing of this preliminary Agreement, to confer with the Syndicate on these matters.

8.—The terms of this preliminary Agreement will, immediately after signature, be submitted by the Administrator-General to the Throne for sanction by Imperial Edict, which shall be officially communicated by the Tsung-li Yamen to the British Minister in Peking.

9.—Three months from the date of signature of this preliminary Agreement shall be allowed to the Syndicate to accept or decline its terms. Upon their confirmation by the Syndicate this preliminary Agreement shall be replaced by a definitive Agreement, providing for all details.

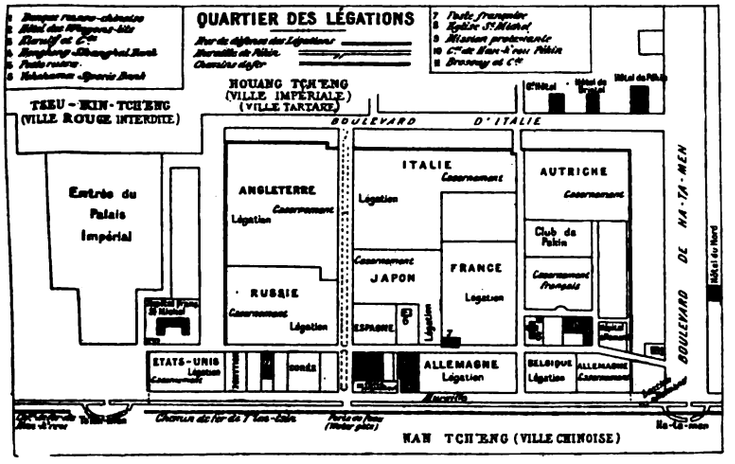
(*) Several of these agreements are reproduced from P. H. Kent's "Railway Enterprise in China."

Signed at Peking, this 7th day of June 1898, being the 19th day of the 4th moon of the 24th year of the Emperor Kuang Hsu.

(Seal of Administrator-General of Railways within and without the Shan-hai-kuan boundary.

For the Hong Kong and Shanghai Banking Corporation,

(Signed) E. G. HILLIER, *Agent.*



THE QUARTERS OF THE FOREIGN LEGATIONS IN PEKING

DEFINITIVE AGREEMENT BETWEEN THE BRITISH AND CHINESE CORPORATION (LIMITED) AND DIRECTOR-GENERAL HURESPECTING THE PEKING-NEWCHWANG RAILWAY LOAN.

This agreement is made between His Excellency Hu, Governor of Peking, as Administrator-General of the Railways of North China within and without Shan-hai-kuan, acting under the authority of the Imperial Chinese Government, hereinafter called the "Administrator-General," of the one part, and the Hong Kong and Shanghai Banking Corporation, for themselves and on behalf of the British firm of Jardine, Matheson & Co., representing as joint agents the British and Chinese Corporation (Limited), hereinafter called the "Corporation" of the other part:

Whereas, on the 7th day of June 1898, being the 19th day of the 4th month of the 24th year of the Emperor Kuang Hsu, a preliminary Agreement was signed at Peking between the Administrator-General and the Hong-Kong and Shanghai Banking Corporation, representing a British Syndicate, for a sterling loan for the equivalent of about 16,000,000 taels, for the construction of a railway line from Chung-hou-sou to Hsin-ming-ting and a branch line to Ying-tzu, and for the redemption of existing loans made to the Tientsin-Shan-hai-kuan and Tientsin-Lu-kou-chiao Railway lines: and

Whereas in terms of the preliminary Agreement a period of three months from its date was allowed to the Syndicate to accept or decline its conditions: and

Whereas the Hong Kong and Shanghai Banking Corporation, before the expiration of the period named, duly notified the Administrator-General that it is prepared, with certain modifications, to arrange the issue of the loan upon the conditions named in the preliminary Agreement:

1.—The Corporation agrees to issue on behalf of the Administrator-General a sterling loan for the amount of £2,300,000, the proceeds of which are to be applied in the order following:—

(1).—To the redemption forthwith or at maturity of the loans and advances specified in the statement attached to this Agreement which have been made by foreign banks to the Tientsin-Shan-hai-kuan and the Tientsin-Lu-kou-chiao Railway lines. The Administrator-General hereby certifies that the total amount of the liabilities due by the lines named does not exceed the sum of 3,000,000 taels.

(2).—To the carrying out, within a period of three years from the date of this Agreement, of certain improvements and additions to rolling-stock on the existing lines between Peking and Shan-hai-kuan, recommended by the European Chief Engineer, and estimated by him to cost about 1,500,000 taels.

(3).—To the construction of a railway line from Chung-hou-so to Hsin-ming-ting, and one from a point on that line near Shih-san-chan to Ying-tzu, and of a branch line from Nu-erh-ho to the collieries of Nanp'iao.

The Administrator-General engages that the construction of the new lines here specified shall be completed within a period of three years from the date of this Agreement.

2.—In the event of the proceeds of this loan being insufficient for the completion of the new lines here specified, the Administrator-General will provide or will arrange with the Imperial Government of China to provide funds from other sources sufficient to complete their construction.

3.—This loan shall be a first charge upon the security of the permanent way, rolling-stock, and entire property, with the freight and earnings of the existing lines between Peking and Shan-hai-kuan, and on the freights and earnings of the new lines when constructed. The Administrator-General shall, during the continuance of this loan, maintain the railway buildings, works, rolling-stock, and dependencies in good order and condition, and shall increase the rolling-stock from time to time to such extent as shall be necessary for the requirements of the traffic.

Should it be decided hereafter to construct branch lines or extensions connecting with the lines herein named, their construction shall be undertaken by the Railway Administration, and should the funds of the Railway Administration be insufficient for that purpose, it shall apply to the Corporation for the same.

4.—The principal and interest of this loan are guaranteed by the Imperial Government of China, and in the event of default in payment of interest or repayment of principal at due date, the Corporation shall immediately notify the Imperial Government of China thereof, and the Imperial Government of China will thereupon provide the funds necessary to meet such payment in sterling in London. In the event of the Imperial Government of China being unable to provide the funds necessary to meeting a payment of interest or principal when called upon by the Corporation to do so, in terms of this clause, the said railway lines and entire property shall thereupon be handed over to representatives deputed by the Corporation to manage, on their behalf, until principal and interest of the loan have been redeemed in full, when the management will revert to the Railway Administration. It is provided that should arrears of interest or principal be for a small sum, and it appear desirable to the Corporation to extend the due date of their payment for a term not exceeding three months, it shall be open to the Corporation to do so.

This arrangement, which differs from other contracts in that the Administrator-General retains control of the railway lines so long as the principal and interest of this loan are regularly paid, has been agreed to in consequence of the friendly relations which have long existed between the Contracting Parties.

5.—No further loan shall be charged upon the security named above, except through the Corporation, until the loan is redeemed; and the Tsung-li Yamen will hand to the British Minister in Peking a written undertaking on behalf of the Imperial Government of China, that the railway lines named in this Agreement shall never be alienated or parted with.

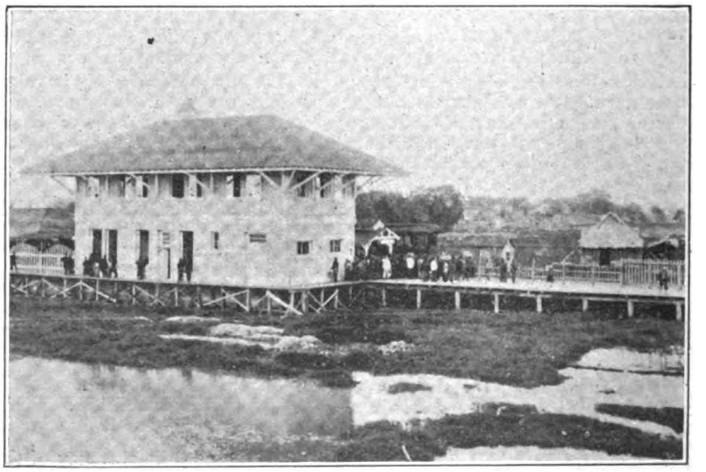
6.—During the currency of this loan the Chief Engineer of the railways shall be a British subject. The principal members of the railway staff shall be capable and experienced Europeans, who shall be, as at present, appointed by the Administrator-General of the Railways, and may be, in the event of their misconduct or incompetency, dismissed after consultation with the Chief Engineer.

If there are Chinese with sufficient engineering or traffic experience they may be appointed as well as Europeans.

Should it be necessary to appoint a new Chief Engineer, such appointment shall be made in consultation with the Corporation.

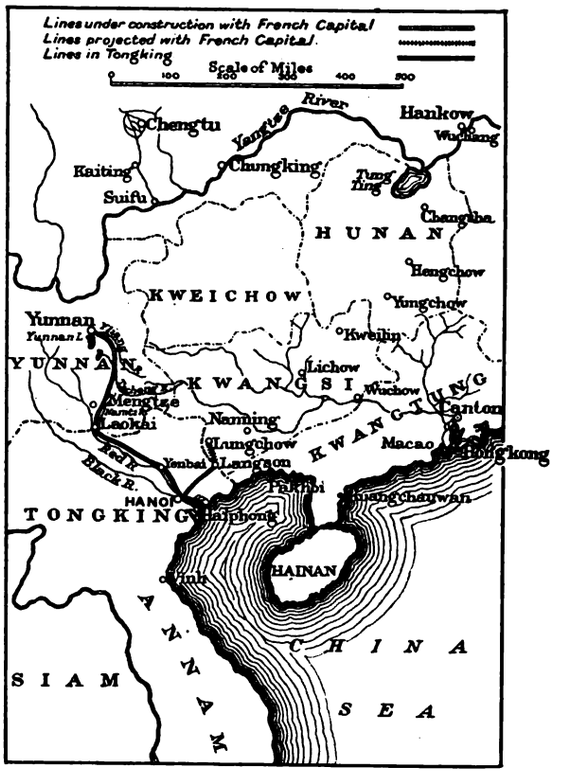
In addition to the above, a capable and efficient European Railway Accountant shall be appointed, with full powers to organize and direct the keeping of the railway accounts, and to act with the Administrator-General and the Chief Engineer of the railway in the supervision of receipts and expenditure.

7.—The railway lines named in the Agreement being Imperial Government lines, in the event of war or famine, Chinese Government troops and grain may be transported over the lines free.



REAR VIEW OF FATSHAN STATION ON THE CANTON-HANKOW RY.

8.—All receipts and earnings of the lines herein specified shall be paid into the credit of the Railway Administration with the Hong Kong and Shanghai Banking Corporation, Tientsin, together with 50,000 taels annually, payable under the Board of Revenue's arrangement approved by the Throne, by each of the provinces of Shansi, Shensi, Honan, and Anhui, for railway purposes for ten years.



MAP ILLUSTRATING FRENCH RAILWAY RIGHTS IN SOUTH CHINA

All expenses of working and maintaining the lines will be paid from their receipts and earnings, the remainder of which, together with the provincial funds above named, shall then be charged with the service of this loan. Payments of interest and repayments of principal shall be made in equal monthly instalments, and in accordance with the amounts and dates of a yearly schedule which will be furnished to the Administrator-General by the bank. These payments shall be made by the Administrator-General to the Hong Kong and Shanghai Banking Corporation, Tientsin, in Hongping sycee sufficient to provide the sterling amount due to the bondholders in terms of the prospectus of the loan, the rate of exchange for these payments being fixed by that bank as each such payment becomes due. In reimbursement of expenses incurred in connection with the distribution of the service to the bondholders of the principal and interest of the loan, the Hong-Kong and Shanghai Banking Corporation, Tientsin, shall receive from the Railway Administration a commission of ¼ per cent. on the annual loan service, which will be included in the yearly schedule for the same.

9.—The term of the loan shall be forty-five years, and, subject to the modification mentioned hereinafter, repayment of principal shall be made, so far as regards the bondholders, in forty equal annual instalments, commencing with the sixth year.

10.—Interest on the loan shall be charged at the rate of 5 per cent. per annum on the nominal principal, and shall be calculated on the balance of such principal at any time outstanding, payments of interests being made by the Administrator-General in accordance with the amounts and dates specified in the yearly Schedule to be provided.

11.—The loan will be redeemed by annual drawings in London as provided for in the prospectus. Besides the drawings as provided for, the Administrator-General may, on giving three months' notice to the Corporation, call for extra drawings to be held for any amount. Bonds so drawn to be redeemed by the Railway Administration at 20 per cent. premium on their par value. Any such extra drawings must take place on the date of the ordinary drawing provided by the prospectus.

In the event of such extra drawings taking place, subsequent payments of interest will be adjusted in the Yearly Schedule to be provided, but the repayments of principal shall continue unaltered in terms of clause 9 of this Agreement until the loan is redeemed.

The Imperial Government of China hereby engages that this loan shall not be redeemed or converted otherwise than as herein provided.

12.—The price agreed upon for this loan is 90 per cent. net of the nominal principal, but should an unfavorable state of the market prevail at the time of issuing the prospectus the Corporation is hereby authorized to reduce the price of the loan, at its own discretion, to not less than 88 per cent. net to the Railway Administration.

13.—The Corporation are hereby authorized to issue to subscribers to the loan bonds for the total amount of the loan in pounds sterling, in such form and for such amounts as shall appear desirable to the Corporation, and the Minister for China in London will seal all such bonds with his official seal, as evidence that the Imperial Government of China is bound thereby. Each such bond shall bear the following clause:—

"The Imperial Government of China, pursuant to an Imperial Edict, dated....., unconditionally guarantees and declares itself responsible for the payment of the principal moneys and interest hereby secured, and in faith thereof it has specially authorized the Chinese Minister in London to seal this bond with his official seal."

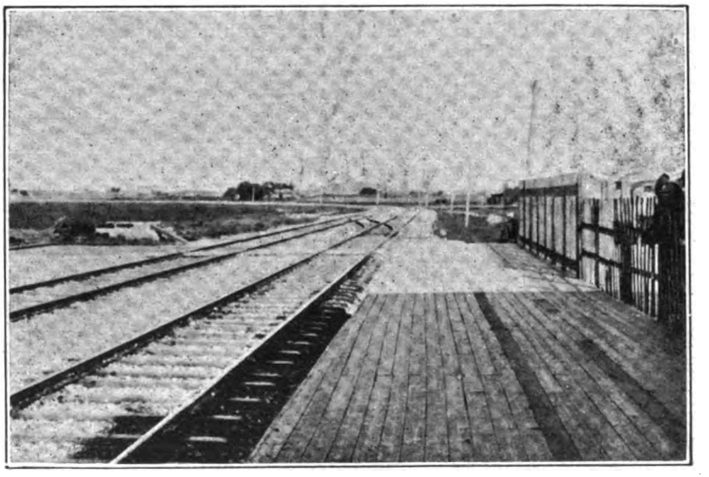
14.—All bonds and coupons and payments made and received in connection with this loan shall be exempt from Chinese taxes and imposts for ever.

15.—All details necessary for the prospectus and connected with the service to the bondholders of the interest and repayment of principal of this loan, not herein explicitly provided for, shall be left to the arrangement of the Corporation, who are hereby authorized to issue a prospectus of the loan as soon as possible after the signing of this Agreement.

The Tsung-li Yamen will instruct the Chinese Minister in London to co-operate with the Corporation in any matters requiring conjoint action.

16.—The loan shall be issued to the public as soon as possible after the signing of this Agreement, and shall date from the first day of the month of its issue. Payment of the entire proceeds will be made in London to the order of the Administrator-General not later than the 31st day of March 1899: of the above proceeds the Corporation will advance to the order of the Administrator-General in London, on or before the 31st day of October next, the sum of £250,000; this advance will bear interest at the rate of 5½ per cent. per annum until such time as the first instalment of the loan proceeds shall be available, when it shall be deducted from those proceeds by the Corporation.

17.—In the event of an unfavorable state of the market rendering the issue of this loan, and the payment of its proceeds to the Railway Administration impossible on the terms named without loss to the Corporation, the Corporation shall be granted such extension of time for the performance of its contract with the Administrator-General as the circumstances demand, any advances or instalments of proceeds already made to the Railway Administration being in that case treated as regards payment of interest, repayment of principal, security, and Imperial Chinese Government guarantee in terms of this present Agreement, and as forming part of the principal amount of this loan. Similar extension of time for the issue of this loan and payment of its proceeds shall also be granted in the event of the Deutsche-Asiatische Bank, Berlin, objecting to its issue



VIEW OF TRACKS ON CANTON-HANKOW RY. FROM FATSHAN STATION

before the month of April next, in accordance with the terms of clause 9 of the Agreement for the Chinese Imperial Government 4½ per cent. Sterling Loan of 1898.

18.—Immediately after the signature of this Agreement, and before the issue of the prospectus of the loan to the public, the Administrator-General will memorialise the Throne and obtain an Imperial Edict confirming and sanctioning the provisions of this Agreement, the Imperial Edict so received being then communicated officially and without delay by the Tsung-li Yamen to the British Minister in Peking.

19.—The Corporation may, subject to all its obligations, transfer or delegate all or any of its rights and discretions to any British Company, Directors, or Agents, in consultation with the Administrator-General, with or without power of further transfer and sub-delegation.

20.—This Agreement is executed in Quadruplicate in English and Chinese, one copy to be retained by the Administrator-General, one by the Tsung-li Yamen, one by the British Minister in Peking, and one by the Corporation. Should any doubt arise as to the interpretation of the contract, the English text shall be accepted as the standard.

Signed at Peking by the Contracting Parties this 25th day of the eighth month of the twenty-fourth year of the Emperor Kuang-Hsu, being the 10th day of October 1898, Western Calendar.

AGREEMENT BETWEEN THE CHINESE GOVERNMENT AND THE RUSSO-CHINESE BANK FOR THE CONSTRUCTION AND MANAGEMENT OF THE CHINESE EASTERN RAILWAY.

Imperial sanction received by the Chinese Envoy to Russia, Hsu, dated 29th August, 1896. Agreement signed 8th September 1896.

1.—China and Russia establish a Company, to be called the Chinese Eastern Railway Co., to construct and manage this railway. The seal to be used by the Company will be issued by the Chinese Government. The regulations of the Company will be in conformity with those of Russian Railway Companies. Shares may only be bought by Chinese and Russians. The Director of the Company will be appointed by China. His remuneration will be provided for by the Company. He may live in Peking. His duty will be to supervise the task delegated to the Company by China, and to ascertain whether its obligations are faithfully performed. All business between the Company and the Chinese Government or any Chinese officials, either in Peking or the provinces, will also be managed by the Director. The Director will also investigate from time to time the accounts of the Company with the Chinese Government. An agent must be stationed in Peking for convenience of consultation.

2.—For the purpose of surveying the course of the railway, the Chinese Director will depute an officer to act in conjunction with the Company's Engineer and the local officials along the line of route, who will arrange matters satisfactorily. Measures must be taken to pass round all houses, graves, villages, and towns on the course of the railway.

3.—Within twelve months of the issue of an Imperial Edict sanctioning this Agreement the Company must have commenced work on the railway; and within six years from the date of the completion of the survey for the line and the handing over to the Company of the necessary land the whole line must be completed. The gauge of the line must be that of the Russian Railway, *i. e.*, 5 Russian feet, equivalent to 42⅛ Chinese inches.

4.—The Chinese Government will order all local officials concerned to do their utmost to assist the Company in regard to all material required for the construction of the railway, in engaging laborers and boats, carts, men, and horses for transport purposes, and in the purchase of grain and fodder. All these must be paid for by the Company at market rates. The Chinese Government will also afford facilities for transport.

5.—The Chinese Government will take measures for the protection of the line and of the men employed thereon. The staff, Chinese and foreign, necessary for the line will be engaged as required by the Company. All crimes and lawsuits arising on the land of the Company will be dealt with by the local officials in accordance with Treaty.

6.—As regards the land required by the Company for constructing, managing, and protecting the line and adjacent land, for procuring sand, earth, stones, and lime, if the land be Government land it will be given the Company without payment. If privately owned, the Company will provide funds for payment to the proprietors at market rates, either in one payment or as yearly rent. All the Company's land will be exempted from land tax. As soon as the land comes under the management of the Company they may erect thereon any buildings and carry on all kinds of work, and they may establish a telegraph line thereon worked by the Company for the Company's use. With the exception of mines, for which special arrangements must be made, all receipts of the Company for transport of passengers and freight telegrams, etc., will be exempt from all taxation'

7.—All materials required by the Company for the construction and repair of the line will be exempt from taxation.

8.—All Russian troops, naval or military, and munitions of war, moved by the Russian Government by this railway, must be conveyed by the Company directly across the border. Apart from slight detentions *en route*, incidental to transfers, no other delays will be permitted for any cause.

9.—Any foreign passengers by this line who may proceed into the interior away from the railway must be provided with Chinese passports authorising them to proceed. Any person unprovided with such passports must be forbidden by the Company to proceed into the interior.

10.—All goods and baggage coming from Russian territory, and again entering Russian territory by this line, will be exempt from taxation, but such goods and baggage, with the exception of personal luggage with passengers, must be carried by the Company in special vans, and sealed by the Customs officers on entering Chinese territory, and on leaving Chinese territory they must be examined by the Customs officers to ascertain that the seals are intact, in which case they will be allowed to pass. If it be found that the seals have been opened *en route* the goods will be confiscated.

As to goods conveyed by this line from Russia to China or from China to Russia, they will pay duty according to the Treaty tariff, *i. e.* an import or export duty, as the case may be, but subject to a reduction of ⅓ of the tariff rate. If such goods be conveyed to the interior they must pay transit duty in addition, *i. e.* half the amount of the duty already paid. Transit duty being paid, they are not to be taxed again on passing Customs stations or likin barriers. But if transit duty be not paid they must pay duty at stations and at likin barriers. China must establish Customs stations at the two points where the line crosses the frontier.

11.—Fares for passengers, freight for goods, and charges for loading or unloading will be fixed by the Company. Chinese Government despatches and letters must be carried by the Company free of cost. Chinese troops and munitions of war will be carried at half rates.

12.—From the day of completion of the railway and the commencement of traffic, for a period of eighty years, all profit made by the line shall belong to the Company solely. Any loss must likewise be borne by it; the Chinese Government cannot be responsible. After eighty years the line and all its property are to revert to the Chinese Government without payment.

Thirty-six years after commencement of traffic China may take over the line on payment of the following and all capital and all moneys owed on account of the line and interest. As to profits made by the Company, should there be any not distributed to shareholders, these must be taken to be capital returned and deducted from the price paid for the line. China must actually pay over the amount of purchase to Russia before receiving possession of the line.

On the day the line is completed and traffic commenced the Company will pay the Chinese Government five million Treasury taels.

THE HSINMINTING-MUKDEN AND KIRIN-KWANGCHENGTZE RAILWAYS.

Convention between Japan and China.

Consuke Hayashi, Envoy Extraordinary and Minister Plenipotentiary of Japan, and Na T'ung, Ch'u Hungchi and Tong Shao-i, Ministers of the Imperial Chinese Board of Foreign Affairs, having been appointed thereto by their respective Governments, have agreed upon the following articles:—

1.—The Chinese Government being desirous of purchasing the Hsinminting-Mukden Railway, constructed by Japan, hereby agrees that the purchase price thereof shall be Japanese gold yen 1,660,000, to be paid through the Yokohama Specie Bank at Tientsin.

The status of this railway shall be changed by the Chinese Government to that of the lines built by China herself, and it is agreed that one-half of the capital needed for that part of the line east of the Liao River shall be borrowed from the Southern Manchurian Railway Company.

2.—The Chinese Government being about to construct a railway line herself from Kirin to Kwangchengtze, agrees to borrow from the aforesaid Company one-half of the capital needed for this work.

3.—The conditions of the loans provided for in Articles 1 and 2, with the exception of the periods within which they are to be repayable, shall be in all respects similar to those of the Loan Contract of the railways inside and outside Shan-hai-kuan. The most important conditions are mentioned below. The regulations for the management of the railway line shall correspond with the methods at present employed by the General Office of the railway lines inside and outside Shan-hai-kuan.

(*a*) The periods within which the loans shall be repaid shall be for that of the Hsinminting-Mukden line east of the Liao River, eighteen years, and for the Kirin-Kwangchengtze line twenty-five years.

No repayment in full of these loans shall be allowed before the expiration of the periods named.

(*b*) The security for the loan from the Southern Manchurian Railway Company for that part of the Hsinmin-Mukden line east of the Liao River shall be the real property of the aforesaid section and its earnings.

The security for the mercantile shares to be issued by the Kirin-Kwangchengtze Railway Administration, as well as for the loan to be made from the Southern Manchurian Railway Company, shall be the real property of the said railway and its earnings.

So long as these loans are not repaid by the Chinese Government the aforesaid property and earnings of the above-named lines shall not be pledged as security for any other loan.

During the periods of these loans the Chinese Government agrees that the buildings, machinery, rolling-stock and road bed of the section of the Hsinmin-Mukden Railway east of the Liao River, and of the Kirin-Kwangchengtze Railway, shall be kept in good condition, and furthermore that such additions will be made to the rolling-stock from time to time as may be regarded to satisfy the demands of the traffic.

If the Kirin-Kwangchengtze line should hereafter build branch lines or an extension, the construction of such lines shall rest of right with the Chinese Government, but if there should be a lack of capital, application shall be made to the Southern Manchurian Railway Company for an arrangement. Should China, however, appropriate funds herself for the construction of any other railway lines than those mentioned, it shall not concern the Southern Manchurian Railway Company.

(*c*) The loans and the interest thereon are guaranteed by the Chinese Government, and should there be any failure to make payment of interest or re-payment of principal at the proper periods, the Company shall at once notify the Chinese Government, which shall pay over to the Company the amount of the

IMPERIAL CHINESE RAILWAY.—HWANG TZUN STATION

shortage. If the Chinese Government, after such notification by the Company, shall be unable to make good the deficit in the payments of principal or interest, the line in question with its real property shall be handed over to the temporary control of the Company until the shortage is made good, after which it will be returned to the control of the Railway Administration.

If, however, the shortage be for a small amount only, an extension of time shall be granted as an accommodation, but never for more than three months.

(*d*) During the periods of these loans the Engineer in Chief employed shall be a Japanese, and should there be an insufficient supply of Chinese for the various posts in the service of the railways, Japanese may be employed with the Chinese. If at any time it shall become necessary to change the Engineer in Chief, consultation must first be had with the (Southern Manchurian Railway) Company before appointment may be made. There shall also be appointed one Japanese Accountant, who must be thoroughly qualified, and who shall have entire responsiblity for the arrangement and oversight of the various accounts of the railways, but in his supervision of receipts and expenditures he must consult and act with the Director-General.

(*e*) The railways mentioned being Chinese Government lines, the latter shall have the right to transport soldiers and subsistence over either line free of charge whenever military affairs or measures of relief shall require.

(*f*) All earnings of the railways in question must be deposited in Japanese banks. As to the terms upon which such deposits shall be made, satisfactory arrangements shall be agreed upon by the parties concerned when the loan contracts are drawn up.

4.—The Chinese Government, immediately after the purchase of the present Hsinmin-Mukden Railway, shall enter into a contract with the Southern Manchurian Railway Company for the loan in connection with that section of the line east of the Liao River, and shall also appoint and direct a Chinese engineer to consult and act with the Japanese engineer in making a survey of the Kirin-Kwangchengtze line to furnish a basis for estimating the amount of the loan needed for the construction of the line, and within six months after the completion (of the survey) shall enter into a contract with the Southern Manchurian Railway Company for the loan.

5.—The lines fromHsinmin to Mukden, and from Kirin to Kwangchengtze, under the management of China, must connect with the Southern Manchurian Railway line. The Tientsin-Shan-hai-kuan Railway Administration and the Southern Manchurian Railway Company shall appoint representatives to consult together and draw up the necessary regulations.

6.—The rate at which the loans specified in Articles 1 and 2 shall be issued, shall be determined fairly in accordance with the terms of the most recent loan negotiated by China with any foreign country.

7.—Within one month after the payment of the purchase price of the Hsinmin-Mukden Railway the Chinese Railway Administration shall appoint officers to take control of the sums.

Japanese Calendar, Meiji XL Year, fourth Month, 15 Day.

Chinese Calendar, Kuanghsu XXXIII Year, Third Moon, 3 Day. (April 15, 1907).

AGREEMENT FOR THE CONSTRUCTION OF A RAILWAY FROM TAOKOW TO CHINGHUA, IN THE PROVINCE OF HONAN, MADE BETWEEN H. E. SHENG HSUAN-HUAI, DIRECTOR-GENERAL OF RAILWAYS, BEING THERETO SPECIALLY AUTHORIZED BY THE CHINESE GOVERNMENT, AND GEORGE JAMIESON, ESQ., C. M. G., AGENT-GENERAL OF THE PEKIN SYNDICATE LIMITED, ALSO BEING FULLY AUTHORIZED BY THE SAID SYNDICATE.

1.—On the 21st May 1898 (Kwanghsu 24th year 4th Moon 2nd day) the Shansi Bureau of Trade signed an Agreement with the Pekin Syndicate for working coal and iron in the five following places, namely, Yu Hsien, Pingting Chow, Luanfu, Tsechowfu, and Pingyangfu in the province of Shansi, and on the 21st June 1898 (Kwanghsu 24th year 5th Moon 3rd day) the Yu-Feng Company signed a mining Agreement with said Syndicate for mining in Honan in the neighborhood of Huai Ching and north of the Yellow River. These Agreements were both ratified by the Tsungli Yamen, in pursuance of an Imperial Decree dated 17th May 1898 (Kwanghsu 24th year intercalary 3rd Moon 27th day). In Article 17 of said Agreements it was stated that the Pekin Syndicate, on notifying the Governor of the province, should be permitted to build a railway to connect the mines with a main line or with water navigation. In June 1902 the Pekin Syndicate began to open coal mines in Sui Wu Hsien of Honan province, and at the same time gave notice to the Governor and obtained permission to build a railway from the said mines to Taokow, a port on the Wei River.

The British Minister has now applied that the said railway be put under the General Administration of the Imperial Chinese Railway Company, and the matter having been arranged in consultation with the Wai Wu Pu, this Agreement has been discussed and settled between the Director-General of the said Imperial Chinese Railway Administration and the said Syndicate.

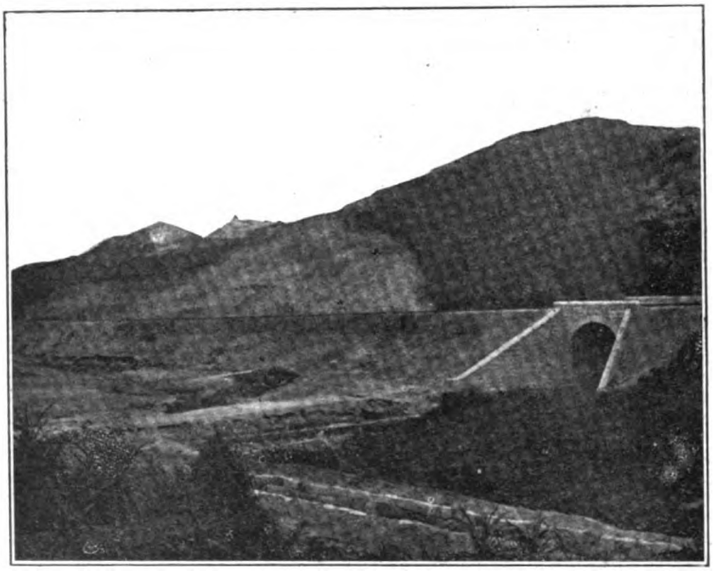
The line from Taokow to Tsechow is divided into two sections, the first from Taokow to the neighborhood of Chinghua Chen, a distance of 90½ miles; the second section is from Chinghua Chen to the neighborhood of Tsechow in Shansi, a distance of 38 miles more or less.

The construction of the first section has been undertaken by the Pekin Syndicate, and is now approaching completion. The present Agreement deals specially with the first section from Taokow to Chinghua Chen. As regards the second section, it is agreed that hereafter, when the Pekin Syndicate has fixed a date for opening mines in the neighborhood of Tsechow, a supplementary Agreement will be drawn up between the Director-General and the Pekin Syndicate to provide funds for construction, etc., of this section on terms in conformity with those of the present Agreement for the Taokow to Chinghua line, and on the basis of the Russian Cheng-Tai Railway Agreement, said terms to be settled at their discretion.

The cost of construction of the line from Taokow to Chinghua Chen, including rolling-stock and monies expended by the Syndicate as estimated by the Chinese Engineer after verification of the proper accounts, is £614,600. But in order to provide a liberal sum to meet the expenses of working the line until it is fully developed, and the interest on the loan, the Director-General has fixed the amount of the loan at £700,000, in 7000 bonds of £100 each. This loan is to bear interest at 5 per cent. per annum, and to be called the Chinese Imperial Government Honan Railway 5 per cent. (gold) loan of 1905.

2.—Out of the above amount of £700,000 there will be issued to the Syndicate 6829 bonds of £100 each, which the Syndicate takes firm at the price of 90 per cent. of face value, equivalent to £614,600 cash, in order to refund the above amount of capital. This will be done on the day when the line is handed over to China, and interest on the bonds will accrue from date of issue.

At the same time the Syndicate will make up and present an account with vouchers of all initial expenditure not already included in



1917-EMBANKMENT APPROACHING KOWLOON END OF THE TUNNEL

construction account, and of the sums provided by them from time to time for the ordinary working of the line from the date of opening to traffic to the time of handing over, and request the General Administration to examine and settle it. Any loss on working account after deducting earnings will be borne half and half by each. To the amount so found due will be added interest on capital from January 1st, 1905, to the date of handing over, and the total of these two items will be refunded to the Syndicate by the former issue of bonds out of the 171 surplus bonds in hand for the required amount reckoned at 90 per cent. of face value. If any bonds still remain over they will be retained by the Imperial Chinese Railway Administration for future use. If after the line is taken over the earnings of the line are insufficient to meet the payment for interest and refund of capital at due date a further loan may be obtained from the Syndicate. These bonds shall be signed in the name of the Chinese Government by the Chinese Minister in London.

The interest coupons will be paid at their face value in gold in London on the 1st of July and 1st January of each year. Coupons falling due and paid will be collected in numerical order by the Syndicate at its cost and handed over to the Chinese Minister in London.

3.—The loan shall be redeemed in twenty years dating from the tenth year of issue by annual drawings, which shall be held in London at the office of the Pekin Syndicate, in conformity with the schedule hereto annexed.

The drawings will be held on the 2nd Tuesday of January of each year. The first of such drawings shall be held in the year 1916. The number of drawn bonds at each drawing will be published in four daily newspapers at the cost of the Syndicate.

4.—Drawn bonds shall be paid in gold at their face value at date when the next interest falls due. Bonds presented for payment must be surrendered along with all the interest coupons not yet due. In case of shortage the sum of the missing coupons shall be deducted from the capital repayable. Interest on the bonds will cease on the date when the latter are repayable. Repaid bonds will be collected by the Pekin Syndicate at its cost, and handed over to the Chinese Minister in London.

5.—The Chinese Government shall not be at liberty before the year 1916 to augment the amount of the annual instalments for redemption, nor to repay the whole amount of the loan, nor to convert the loan. After this date the Chinese Government shall be at liberty at any time to repay the whole amount of the loan, provided, however, that until the expiry of the Syndicate's mining concessions the rates then in force for the conveyance of minerals shall not be arbitrarily increased to the detriment of the Syndicate's business. On the other hand, the Syndicate, after having settled an equitable tariff with the General Administration, based on the practice on other lines, shall not make pretexts to lower the rates to the detriment of the fund available for payment of principal and interest.

6.—Interest coupons and drawn bonds shall be repayable in gold in London at the office of the Pekin Syndicate, or of such bank as the Syndicate may appoint for that purpose.

7.—Payment of interest and repayment of the bonds forming this loan are guaranteed upon the general revenue of the Chinese Government. Further, by consent of the Chinese Government, the Imperial Chinese Railway Administration hereby declares that the net earnings of the said section of railway, after payment of the ordinary working expenses, are specially reserved for payment of interest and repayment of the said bonds, as is set out in the Working Agreement made between the said Imperial Chinese Railway Administration and the Pekin Syndicate, and which working Agreement is to be taken as one with this Contract. This reserve is exclusively for the purposes above set forth, and is not divertible until the final extinction of the bonds of this loan.

8.—The Imperial Chinese Railway Administration, after having taken note of the net receipts, authorises the Pekin Syndicate to convert the amount into gold, which shall be done on the most favorable terms in the interest of the Chinese Government and the Imperial Chinese Railway Administration, in order to assure the service of the loan at the next half-yearly period of payment. The remittances to the head office of the Pekin Syndicate in London shall continue until the sum necessary for the whole service of the loan at the next half-yearly payment has been realised in gold, and so that the service of the loan is assured three months at least before the half-yearly payment falls due.

The bank in which such sums are deposited will allow the best interest obtainable, for the benefit of the Imperial Chinese Railway Administration. The account in which said sums stand will be debited twenty days in advance with all the payments falling due at any half-yearly period, as provided for in this Contract, whether for interest, repayment of capital, cost of transport or commission.

9.—In order to assure more fully the guarantee now given for the loan, the Imperial Chinese Railway Administration creates in favor of the bonds a first mortgage over the said section of railway line, its permanent way, rolling-stock, and earnings. This special hypothecation is made to and accepted by the Pekin Syndicate for the benefit of the bondholders.

In case the Imperial Chinese Railway Administration shall fail to carry out the engagements entered into by this Contract the Pekin Syndicate can exercise, in respect to the said railway and property, all the rights and powers which they are entitled to exercise resulting from this special hypothecation.

10.—The foregoing stipulations do not militate against the responsibility of the Chinese Government in regard to this loan as specified in Article 7. The Chinese Government will devise means to provide the amount in gold necessary to supply the deficiency in case the sums accruing from the net earnings of the said section of railway, and paid over by the Chinese Railway Administration, are insufficient, after conversion into gold, to provide at least three months ahead for the payment falling due at the next half-yearly period.

In such case the Chinese Government will on demand place at the disposal of the Pekin Syndicate, fourteen days in advance of the due date, either in gold or value in some other form sufficient to produce in gold, the sum which the Syndicate may have notified as being necessary to meet the service of the loan.

11.—From the monies thus received from the Imperial Chinese Railway Administration, or from the monies paid over by the Chinese Government, the Pekin Syndicate shall duly set aside beforehand the sums necessary for the next service of the loan on the basis of the requirements of the last preceding half-year.

12.—The Chinese Government will pay to the Pekin Syndicate, or to the bank charged with the service of the loan, a commission of one-fourth of 1 per cent. on the amount of interest coupons paid,—that is, £25 on each £10,000, and the like commission on all bonds drawn for payment or repaid in anticipation of the due date. The amount of this commission will be taken from surplus earnings of the railway, if there are any, and in case these are insufficient it will then be paid by the Chinese Government.

13.—The Chinese Government binds itself to respect and cause to be respected the privileges attaching to the bonds as stipulated for in the present convention, and to maintain the bonds themselves, the interest coupons and operations incident to the service of the loan, free from every tax and impost of whatsoever nature.

14.—Coupons not presented for payment within five years from the date when they fall due will be forfeited for the benefit of the Chinese Government. In case of drawn bonds the term within which payment may be claimed is thirty years. In the case of a deceased bondholder the right will pass to his heirs, executors, etc., in conformity with the law of his own nationality.

Payment of the coupons and repayment of bonds will be made whether in time of war or peace, and irrespective of whether the holder belongs to a hostile or friendly State.

If bonds are lost, stolen, or destroyed the Chinese Government, upon satisfactory proof of the facts of the loss and the title of the claimant, will authorise the Pekin Syndicate to issue fresh bonds to replace those lost, at the expense of the Syndicate.

15.—The Chinese Government, through its Representative in London, will take the necessary steps and furnish the necessary documents so as to enable the bonds to be officially quoted on the London Stock Exchange.

16.—The price of all land taken up for the railway having been included in the loan, the Syndicate will in the first place hand over the title-deeds to the Imperial Chinese Railway Administration, so that a list may be made which, after being stamped by the Magistrates of the several districts concerned, will be retained for record. The Railway Administration will then return the deeds to the Syndicate for custody, having first impressed on each a stamp indicating that they are not to be sold, pledged, or mortgaged. When the term has expired, or when the loan is fully repaid, the Syndicate will thereupon hand over to the Railway Administration all the original title-deeds, to be held by them as owners of the property. During the continuance of the term the Syndicate shall not assign the deeds to others, whether by way of sale, mortgage, or pledge.

17.—This Agreement and the rights under it being made with the Pekin Syndicate, which is of British nationality, the said Syndicate, besides conforming as hereby required with the several articles of the Agreement, shall not either openly or secretly alienate the said rights to persons of another nationality, and shall not substitute persons of another nationality in the management of the railway affairs. A breach of this stipulation will entitle the Imperial Chinese Railway Administration to take the management out of the hands of the Syndicate, and entrust it to another company, and in that case the Syndicate shall have no claim for compensation.

The foregoing places no restriction on the holding of shares in the Pekin Syndicate by persons of another nationality, nor on the holding of bonds of this loan, both of which may be freely bought and sold on the market at the convenience of the holders.

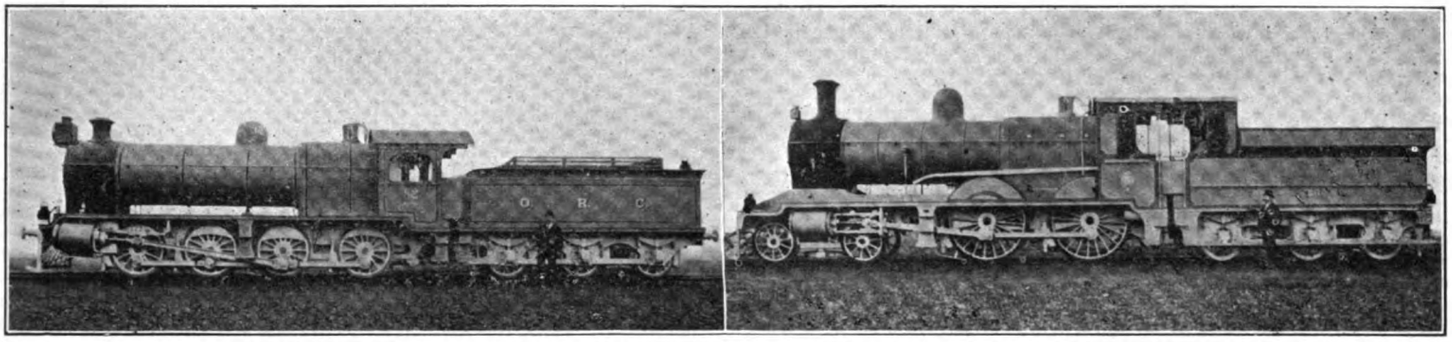
18.—In the accounts of this section there has been included an item for preliminary survey expenses, as also the cost of partial surveys of the second section which have already been made by the Syndicate, the result of which will be submitted to the Director-General.

19.—All plant and materials necessary for the repair and working of the line will be purchased by the Syndicate as agents, but in placing such order the Syndicate will do their best to get the most favorable terms. A list of articles required shall be submitted to the Director-General for approval before the order is given.

It is understood that articles which China herself can manufacture, if quality and price are the same, are not to be ordered from abroad. The workshops and mines controlled by the Director-General Sheng ought more especially to have the preference in supply of such articles, provided that in quality and price the articles are equivalent to what can be imported from abroad. By price is meant the cost in the foreign country plus freight and insurance. All materials imported from abroad shall be exempt from customs duty, and from likin in transit to the interior.

20.—In case of difference of opinion arising between the Pekin Syndicate and the Chinese Government, or the Imperial Chinese Railway Administration, the matter in dispute shall be discussed and settled between a member of the Wai Wu Pu and the British Minister. If these cannot agree the Wai Wu Pu and the British Minister will appoint an Arbitrator, whose decision will be final.

21.—This Agreement is executed in duplicate, one copy to be kept by the Imperial Chinese Railway Administration and the other by the Peking Syndicate. In case of doubt or ambiguity of meaning between the tw



LOCOMOTIVES IN USE ON THE SHANGHAI-NANKING R.R. BUILT BY MESSRS. ROBERT STEPHENSON & CO., LTD., OF DARLINGTON

texts, the English version shall be deemed the standard. This Contract shall be submitted to the Throne by the proper authority, who will request ratification. After ratification the Wai Wu Pu will officially communicate the fact to the British Minister at Peking for record, and so that the Syndicate may conform to the articles hereby agreed upon.

All the above must be done within one month from date of signature.

Signed and sealed at Peking the 3rd July 1905.

Signature and Seal of

SHENG HSUAN-HUAI,

Director-General of Railways.

(Signed) G. JAMIESON,

Agent-General, Pekin Syndicate Ltd.

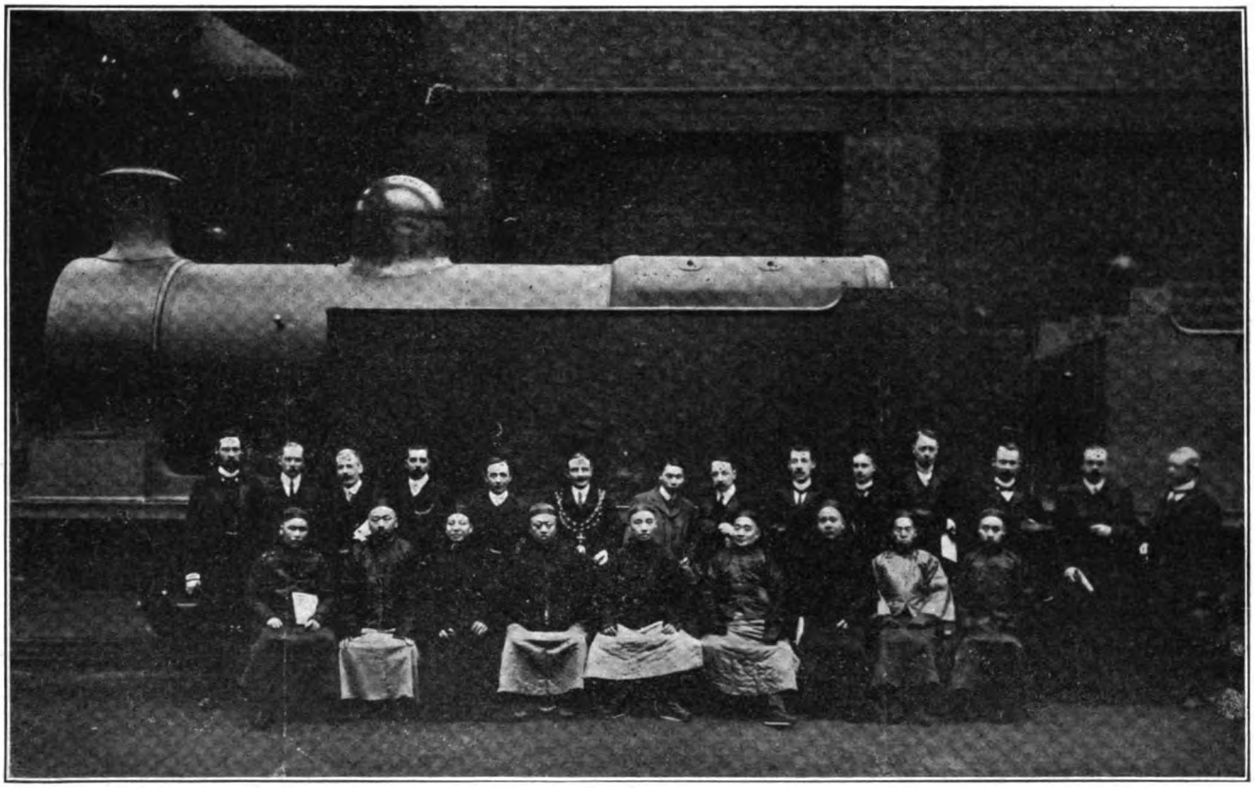
ager shall be communicated beforehand to the Director-General for his information and confirmation.

2.—As soon as this section of the line is completed the Pekin Syndicate will report to the Director-General, and after being definitely taken over by him the Pekin Syndicate will take charge of it for working. The section is to be completely provided beforehand with all the rolling-stock necessary for working, as also with a supply of tools, furniture, and funds for working expenses. The Pekin Syndicate or its delegate, in conformity with the stipulation in Article 1, will organize the service. It will have authority to engage or dismiss

gate to the Director-General of Railways, and settled in consultation.

The General Administration shall have the fullest power to examine the details of income and expenditure, and to appoint a Representative, a Cashier, Accountant, and an Interpreter, who will be associated with the European staff, in order to exercise the above-mentioned power of examination. The salaries of the Representative and his associates above-mentioned will be paid from the office of the Tsechow-Taokow Railway.

The Representative shall countersign all vouchers for payment. Accounts will be rendered monthly to the General Administration in English and Chinese, one copy each, and



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VISIT OF THE CHINESE COMMISSIONER TO MESSRS. ROBERT STEPHENSON'S LOCOMOTIVE WORKS AT DARLINGTON.

WORKING AGREEMENT MADE BETWEEN HIS EXCELLENCY SHENG, DIRECTOR-GENERAL OF RAILWAYS, BEING THERETO SPECIALLY AUTHORIZED BY THE CHINESE GOVERNMENT, AND G. JAMIESON, C. M. G., AGENT-GENERAL OF THE PEKIN SYNDICATE LIMITED.

1.—The Imperial Chinese Railway Administration, under the authority of the Imperial Government, authorises the Pekin Syndicate, which will appoint a General Manager for the purpose, to manage, administer, and work the Taokow-Chinghua section of railway for profit on behalf of the said Railway Administration. Notice of the appointment of the General Manager officials and servants, and as to their salaries a scale thereof will be drawn up beforehand for submission to the Director-General, and subsequent alterations will also be submitted for his approval. The Syndicate shall also purchase all articles necessary for the maintenance and repair of the line, shall fix rates for goods and passengers in accordance with the railway regulations on other lines, shall receive all the earnings and pay all the working expenses and the expenses of the Imperial Chinese Railway Administration relative to this railway. All the above working details must be submitted beforehand by the Pekin Syndicate or its delesigned by the respective English and Chinese officials.

The General Administration reserves the right to cause the dismissal of any employee, whatever his nationality, including the General Manager, who does not perform his work satisfactorily or is guilty of misconduct, insubordination, or disrespect towards the Chinese authorities, and this should be mentioned in the contracts at the time of engagement of the employee.

All Chinese Employees, whether for repairs of line or otherwise, will be selected by the Representative of the Director-General, who

will place them under the executive orders of the General Manager. No Chinese officials or servants can be engaged without the sanction of the Director-General. The expenses of the Shanghai Imperial Railway Administration in respect to this line shall be paid in the same way as for the Luhan Railway. After this section is finished and the working has begun, if additional rolling-stock or plant is required, or if improvement or extensions of the line or stations become necessary, the funds for the same shall be provided by the office of the Tsechow Railway. As regards contracts for the supply of materials necessary for maintaining and repairing the line, means should be devised to place the same at Chinese workshops. It is understood that the mines and workshops controlled by H. E. Sheng shall have the preference on the conditions and at the price at which the articles could be purchased abroad. By price is meant laying down cost in China.

3.—In the event of military operations, whether due to foreign war or internal disturbances, the railway will give the preference to Chinese Government troops, stores, or munitions of war over private merchandise in conveyance over the line.

Rates to be charged in such cases shall be one-half of the ordinary rates, and in such matters the railway will carry out any special instructions given by the Director-General. Articles tending to the injury of the Chinese Government are not to be carried on the line.

In case of famine, stores for relief will be carried at half rates.

Special arrangements will be made in consultation with the Representatives of the Director-General for conveyance of local authorities or members of the Imperial Government travelling on important business over the line. Free passes over the railway shall be countersigned by the Representative of the Director-General.

4.—From the net earnings of the line after paying all working expenses the Pekin Syndicate shall retain such sums as are necessary to meet the service of the loan at least three months in advance of the next half-yearly payment. This procedure will be followed until the whole loan is finally redeemed. The sums retained will be paid over monthly to the Pekin Syndicate, or to the bank appointed for that purpose by the Syndicate. The latter will convert the sums so received into gold at best rate obtainable, in order to be used for the service of the loan. Information as to this will be given from time to time to the Director-General.

When by means of monies thus paid over the service of the loan is assured the Syndicate will set apart 10 per cent. of the surplus, which will be devoted to building up a reserve fund in order to meet the cost of ordinary or extraordinary repairs with a view to assure the working of the line. The surplus of net earnings still remaining will be paid over to the Imperial Chinese Railway Administration. When the loan is all repaid, in accordance with the next following article, the Syndicate or its Representative will hand over to the Representative of the Director-General all the line, fixtures, rolling-stock, and appurtenances, the whole in good working condition.

5.—The duration of the present contract is fixed at thirty years from date of signature. If, however, on the expiry of that date the loan is not fully paid off the term of the contract will be necessarily extended, and it will continue until the whole loan is finally redeemed. But if the loan is finally redeemed before the due date the present working contract shall become null and void from the date of such redemption.

6.—The Pekin Syndicate, during the term of this contract for the working of the line, shall be entitled to receive from the Imperial Chinese Railway Administration, on making up the yearly accounts, 20 per cent. of the surplus profits of each year. By surplus profits is meant what is left over after providing for payment of interest and redemption of capital.

7.—In case of dispute the matter is to be settled as provided for in Article 20 of the principal contract.

8.—If the earnings are insufficient to meet working expenses the Imperial Chinese Railway Administration will provide funds so as to enable the regular working of the line to be kept up. The funds thus supplied will be considered as a temporary advance merely, and to be paid as soon as the income exceeds expenditure.

9.—All materials and supplies which the Syndicate may require for the working, maintenance and repair of the line shall, if imported from abroad, be exempt from Customs duty and likin.

10.—The present contract is drawn up in two copies, one for the Imperial Chinese Railway Administration and the other for the Syndicate.

In case of doubt or difference in interpretation of the contract the English version shall be deemed the standard.

This Contract shall be submitted to the Throne for ratification by the proper authorities, and when the Imperial sanction has been obtained it will be communicated by the Wai Wu Pu in an official despatch to the British Minister. Signed and sealed at Peking the 3rd July 1905.

Signature and Seal of
SHENG HSUAN-HUAI,
Director-General of Railways.
(Signed) G. JAMIESON,
Agent-General, Pekin Syndicate Ltd.

FINAL AGREEMENT BETWEEN SHENG KUNG-PAO, DIRECTOR-GENERAL OF THE IMPERIAL CHINESE RAILWAY ADMINISTRATION, AND THE BRITISH AND CHINESE CORPORATION LIMITED, FOR THE ACQUISITION OF A LOAN FOR THE CONSTRUCTION OF A RAILWAY FROM SHANGHAI TO NANKING:—

This Agreement is made the 15th day of the Intercalary month of the 29th year of Kwang-Hsu, corresponding to the 9th day of July 1903, at Shanghai, and the Contracting Parties are:—

The Director-General of the Imperial Railway Administration, Sheng Kung-Pao (to be called hereafter Director-General), acting under authority of an Imperial Decree, of the one part, and Messrs. Jardine, Matheson & Company, and the Hong Kong and Shanghai Banking Corporation, representing as Joint Agents the British and Chinese Corporation Limited (hereinafter called the Corporation), of the other part.

Whereas, on the twenty-third day of the Intercalary third month of the twenty-fourth year of Kwang-Hsu, being the thirteenth day of May 1898, a preliminary Agreement was signed at Shanghai between the Director-General of the Chinese Imperial Railway Administration, Sheng, acting under instructions from the Tsungli Yamen, and the British firm of Jardine, Matheson & Company, for themselves and on behalf of the Hong Kong and Shanghai Banking Corporation, representing as Joint Agents a British Syndicate, and

Whereas, on the 12th day of December 1902, an Imperial Decree was issued in the following terms:—"In view of the important considerations connected with the construction of railways in various parts a Decree has already been issued apportioning the responsibility for the duties connected therewith. Hereafter the accounts of receipts and disbursements are to be prepared by Sheng Hsuan Huai, and communicated by him for the examination of the High Authorities of the provinces through which the railways pass, and subsequently for submission in a joint memorial to the Throne. When a line of railway has been surveyed, before the work may be begun, plans and specifications must be communicated to the High Authorities above-mentioned, who will depute an official to ascertain that there are no objections. Should Sheng Hsuan Huai enter into any agreement with a foreign Syndicate he must before signing such Agreement obtain the assent of the High Provincial Authorities, and a copy of such Agreement must be submitted to the Throne in a joint memorial," and

Whereas, on further consideration it has been found necessary to make certain alterations in the aforesaid preliminary Agreement, now therefore it is agreed that this final Agreement shall be substituted for the preliminary Agreement above referred to.

Article 1.—The Corporation agrees to issue on behalf of the Railway Administration, a sterling loan (hereinafter referred to as the loan) for an amount not exceeding £3,250,000 sterling, on the terms and conditions hereinafter contained. Imperial Chinese Government bonds are to be issued for the entire sum, similar to the bonds of the Imperial Railways of North China, with the Railway as first mortgage security therefor. The loan shall be issued in two or more parts, and each series is to be in such amount as the Engineer-in-Chief may determine under direction of the Director-General and the Corporation, in accordance with the extent of the work to be undertaken, so as to prevent the Chinese Government from suffering undue loss of interest. The price agreed upon for the loan is 90 per cent. of the nominal value, and any loss or profit in selling these bonds to the public shall be borne by or go to the Corporation. The interest on the bonds shall be at the rate of 5 per cent. per annum on their nominal value, and be payable half-yearly.

The duration of the loan is fixed at fifty years, commencing from the date of the ratification of this Agreement, but no interest will be paid on any bonds which may be redeemed or cancelled under the terms hereinafter mentioned after the redemption or cancellation thereof.

On the face of each of these bonds shall be expressed the value thereof in the sum of £100, or in such different amounts as the Chinese Minister in London in consultation with the Corporation may sanction.

If any of the bonds or net profit certificates hereinafter mentioned are lost or destroyed a reissue of any thereof is to be made in the amounts respectively called for by such lost or destroyed bonds or certificates, but proper proof of the loss or destruction must be given in the usual form to the Corporation and the Chinese Minister in London for examination and record, and the requisite guarantee is to be obtained by the Corporation from the respective claimants concerned.

Article 2.—The proceeds of the loan are to be used in the construction and equipment of the railway, and in paying interest on the loan during the course of construction.

The Corporation shall build and equip as economically as possible in accordance with the best modern system, the line from Shanghai to Nanking, it being hereby agreed that the Chinese Administration shall secure the necessary land for a double line of railway for the whole distance, as well as other facilities for the purposes of the construction and working of the line.

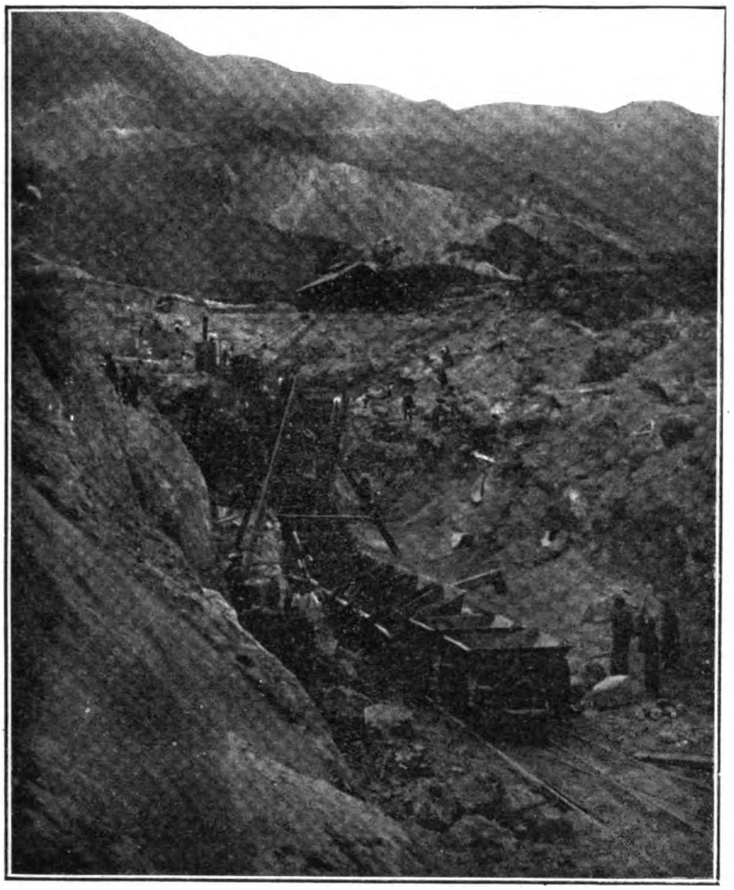
When the line is completed, if there is a surplus from the sale of bonds, the said surplus shall be at the disposal of the Chinese Government for redeeming the bonds, or to be placed through the Director-General in a bank on deposit for the purpose of paying interest on the loan or for developing business beneficial to the Shanghai-Nanking Railway, all to be arranged at the proper time between the Director-General and the Corporation. Should Chinese themselves build branch lines to act as feeders to this railway, it is understood that the system of construction and equipment thereof shall be adopted by such branch lines in order to facilitate through connection.

In all matters relating to the construction and administration of the railway by the officials of the British and Chinese Corporation it is expressly agreed that particular heed shall be paid to the opinions, habits, and ideas of the Chinese people, and that when practicable Chinese shall be employed as far as possible by the Board of Commissioners in positions of trust and responsibility in connection with the railway.

In regard to the earthwork or such other work as Chinese are competent to perform, contracts shall be entered into for such work with Chinese under the sanction of the Director-General or his deputy, said work itself to be in accordance with plans and specifications of the Engineer-in-Chief, and under his supervision.

In the further and final survey detailed plans and estimates of cost, whether of the respective sections of the main line or of any extensions, branches, or alterations of the same, are to be submitted to the Board of Commissioners for the approval of the Director-General.

Article 3.—The loan shall be secured by mortgage now entered into in equity, and shall as soon as possible hereafter be secured by a specific and legal first mortgage in favor of the Corporation upon the railway now completed between Woosung and Shanghai, and



THE KOWLOON-CANTON TUNNEL ENTRANCE—COMMENCEMENT OF BORING OPERATIONS

also on all lands, materials, rolling-stock, buildings, property, and premises of every description purchased or to be purchased by the railways herein referred to, and on the last-mentioned railways themselves as and when constructed, and on the revenue of all descriptions derivable therefrom.

The provisions of this Article in respect of the mortgage are to be construed and treated as of the same purport and effect as a mortgage customarily executed and delivered in England to a trustee for the purpose of securing loans and bond issues upon railway properties.

Article 4.—According to Article 1 of this Agreement it is provided that the loan is to be paid in instalments from time to time as the work proceeds. It is hereby agreed that within eight months after this Agreement is officially signed and ratified the Corporation shall pay the first instalment to meet the requirements for the work, whether the proceeds come from the sale or hypothecation of the bonds or from advances made, provided the appropriate series of bonds for the required instalment of such loan shall have been executed and delivered. If after the expiration of twelve months from the date of the ratification hereof the work of construction shall not have been begun on the main line, this Agreement is to become null and void.

Of the proceeds realised from the sale of the bonds, after deducting so much of them as may be required to be kept in England for the purchase of materials and payments of contracts there, such amounts as may be estimated and certified to by the Engineer-in-Chief to the Board of Commissioners hereafter mentioned as being actually required for the construction of any particular section of the main line shall be ordered by the Board of Commissioners after consideration to be transferred to Shanghai to be kept in the Hongkong and Shanghai Bank, or such bank or banks as may be mutually agreed upon, and placed to the credit of the construction account of the Railway Administration for the exclusve purpose of building such section or sections of the railway herein provided for under the supervision of the Board of Commissioners.

On each occasion of a remittance being made to China the amount realised in sycee will be reported to the Director-General, and any portion which may not be required shall be placed at interest. Similarly the balance in England shall be placed at interest.

The accounts of the money spent from time to time in England, and of the money transferred to the credit of the construction and other accounts for use in China, are to be submitted quarterly to the Board of Commissioners for examination and for report to the Director-General for the information of the Wai-Wu-Pu and for his further report to the Board of Revenue and the Bureau of Mines for record therein, after such accounts have been approved and signed by him.

Article 5.—The dates of the bonds mentioned in Article 1, and of the certificates mentioned in Article 12 of this Agreement, shall be of even date with this Agreement. Interest shall begin to run upon the bonds only from the date of their respective sales and deliveries to the public, and due adjustment of such interest will then be made with respective purchasers for any fractional period of time thereafter covered by the coupon next maturing. For the purpose of such adjustment the then current interest may be reckoned from the nearest first or fifteenth day of the month in which the sale and delivery occur as the case may be.

Coupons which have theretofore matured are to be cancelled and delivered to the Chinese Minister in London for trasmission to the Railway Administration.

As to the form of bond, it is to be agreed upon by the Director-General or by the Chinese Minister in London and the British and Chinese Corporation at the same time as this Agreement is signed, but if hereafter the money markets in London or other countries require the modification of the form of the bond, except in anything that affects the amount of the loan, the rate of interest, the period of the loan, and the liability of the Chinese Government, which are not to be touched at all, such slight modifications may be made to meet the views of the money markets by the Corporation in consultation with the Chinese Minister in London.

Any modifications are to be reported at once by the Corporation to the Director-General for the approval of the Wai-Wu-Pu.

The bonds and the net profit certificates referred to in Article 12 are to be engraved entirely in the English language, and shall bear the fac-simile of the signature of the Director-General and of his seal of office, in order to dispense with the necessity of signing them all in person. But the Chinese Minister in London is to sign each of the bonds and certificates and put his seal thereon as required, as a proof that the issue and sale of these bonds as well as the certificates are duly authorised and binding upon the Chinese Government.

Such bonds or net profits certificates are to be numbered consecutively, and as many bonds or certificates as may be needed are to be properly engraved under the supervision of the Corporation.

The loan bonds herein referred to, as soon as they are engraved and signed and sealed by the Chinese Minister in London as hereinbefore provided, are to be countersigned by the Corporation.

The Chinese Minister in London and the Corporation are to agree upon the selection of a proper safe deposit in London to keep these bonds, subject to the needs and requirements of the Corporation, so as to enable it during the progress of the construction to sell these bonds after having been signed and sealed by the Chinese Minister in London in separate lots from time to time, or hypothecate the same in order to raise money to pay for the construction of the railway or any of the branch lines as may have been approved by the Director-General.

When the second and subsequent issues are about to be made, if the Corporation receives sufficient notice from the Director-General that subjects of China wish to take up a portion of the issue, the necessary amount of bonds will be set aside for Chinese subscribers, to whom the bonds will be sold at the same price and on the same conditions as those sold to the public in London. If possible, arrangements will be made for issuing these bonds, and paying the interest thereon, in China, at the current rate of the day.

The amount of the loan is fixed at £3,250,000 for the purpose of constructing and equipping the main line of the Shanghai-Nanking Railway, in accordance with the survey and estimates of the Engineer-in-Chief as approved by the Director-General.

The first issue of bonds shall be made in London in such amount as may seem necessary for the work to be undertaken, but before the second or subsequent issues are made the Corporation shall give sufficient notice to the Chinese Minister in London, in order that if the Chinese Government has funds at its disposal at the time it may place such funds to the credit of the construction account of the Chinese Railway Administration, to be used in the same manner as the proceeds of the loan, and in that event the total amount of the loan of £3,250,000 shall be reduced by the amount thus supplied by the Chinese Government.

It is also agreed that the moderate charge for the safe deposit of the bonds is to be paid from the general accounts of the railway. Beyond this all expense for the engraving and the sale of the bonds and such like are to be borne by the Corporation. On withdrawal or deliveries of bonds the Safe Deposit Company shall notify the Chinese Minister in London

Article 6.—When the work of construction is ready to begin the Director-General shall appoint a Board for surveying the construction and operation of the railway, to be called the Board of Commissioners, whose head office shall be at Shanghai. The members thereof shall be five, of whom two are to be Chinese,—one to be appointed by the Director-General and one by the Director-General in consultation with the High Authorities of the province through which the line passes; and besides the Engineer-in-Chief there shall be two British members selected and appointed by the Corporation. The salaries of these five members are to be fixed by the Director-General and the Corporation, and to be paid from the general accounts of the railway. The regulations for the guidance of the Board of Commissioners shall be subsequently drawn up by the Director-General in consultation with the Agent of the British and Chinese Corporation. In case of disagreement between the Chinese and British members the matter shall be referred to the Director-General and the Agent of the Corporation resident in China for adjustment in an amicable way.

The appointments and functions of all the employees of the railway, Chinese and foreigners, with the exception of the Engineer-in-Chief, who shall be nominated by the Corporation and approved by the Director-General, as well as their salaries, including those of the officials of high rank referred to in the following paragraphs, are to be made and fixed by the Board of Commissioners and reported to the Director-General. In the case of important appointments the same shall be first reported to the Director-General by the Chinese members of the Board.

In addition to the Board of Commissioners, the Viceroy (the Superintendent of Southern Trade) may also appoint an official of equal rank with the above-mentioned two Chinese officials, whose duty will be to make report for the information of the High Provincial Authorities on the state of the railway accounts, the progress of the work, and the management of the railway. To this end he will be granted every facility by the Board of Commissioners, who will always give him access to the records of the head office at Shanghai. But this official shall not in any way interfere with the Board in the performance of its duties. The salary of this officer shall be the same as that of the two Chinese members of the Board, and be paid out of the railway account.

The functions of the Engineer-in-Chief, who will at all times give courteous consideration to the wishes of the High Provincial Authorities and the Director-General, shall be limited to the construction and operation of the line and the management of affairs connected with the railway. No foreigners employed in the railway shall be allowed to treat Chinese officials with disrespect, or interfere in local affairs, or usurp the authority of local officials; and should any such be guilty of riotous conduct, or of wounding and maiming Chinese, the same shall be dismissed on complaint being made by the Director-General.

As the progress of construction reaches any particular province the appointment, under the Imperial sanction, of a Chinese official of high rank shall be made in such province by the Director-General, for facilitating the settlement of any local matter with the Provincial Government concerned.

For the service of the railway any Chinese of official rank and competent for the work may be recommended by the Board of Commissioners to the Director-General for employment, under the formality of a letter of appointment.

For the important offices of the railway foreigners of ability and experience shall be employed. In the engineering and traffic departments competent Chinese may also be employed, and all employees, whether Chinese or foreigners, if incompetent in their work or unsatisfactory in their behaviour, may be dismissed at any time by the Board of Commissioners, and the dismissal shall be reported to the Director-General. The Chinese and British members of the Board when ill or absent may be represented at the Board by available substitutes. In the case of the Chinese members the substitutes must be approved by the Chinthe substitutes must be approved by the Director-General, and in case of the British members by the Corporation.

When deemed necessary a school for the education of Chinese in the construction and working of railways shall be undertaken by the Board of Commissioners, subject to report to and approval by the Director-General.

The accounts of the receipts and disbursements of the railway are to be kept by a Chief Accountant, whose records and books are at all times open to the inspection and examination of the Board of Commissioners. All the accounts of the railway construction and operation are to be kept in Shanghai currency in the English and Chinese languages, with the combined signature of a Chinese and British official. The staff of the Chief Accountant's department shall be composed of Chinese and foreigners, who must be satisfactory and reliable men.

Article 7.—Under the provisions of Article 3 of this Agreement the properties covered by the first mortgage security hereby created include the railways, its property and equipment, said mortgage to be executed by a deed in the usual form as contemplated by the said Article. But subject to the guarantee and mortgage thus given by the Chinese Government, it is hereby declared that this railway is in fact a Chinese property.

All the lands that may be required for a double line of railway from Shanghai to Nanking, and for the double track-sidings, stations, repairing shops, and car-sheds to be provided for in accordance with the detailed plans now made or hereafter to be made by the Engineer-in-Chief, and approved by the Director-General, shall be acquired by the Railway Administration, whether in whole or in part, according to the means at its disposal at the actual cost price of the land. The cost of such land is not to exceed £150,000.

The titles to the land for the line and of all other lands shall be free from all encumbrances or entanglements, and shall from time to time as soon as secured be registered in the name of the railway.

For such money as may be provided by the Railway Administration for the purchase of land there shall be allowed yearly interest at the rate of 6 per cent., to be paid by the railway after the fixed charges and maintenance and interest of 5 per cent. on the bonds shall have been met.

Notices of such purchases (together with corresponding title-deeds) are to be transmitted by the Railway Administration under the direction of the Director-General to the local agent of the Corporation for record and preservation in its office in Shanghai, and for the purpose of establishing the first mortgage security (and thereafter for the return to the Railway Administration) as hereinafter in this Article provided in respect of railway lands and properties. When the term of this Agreement expires all the title-deeds shall be surrendered and returned to the Railway Administration.

The amount to be advanced to the Chinese Railway Administration for any land within the survey limits shall altogether not exceed the sum of £150,000, for which yearly interest at the rate of 6 per cent. shall be allowed from the receipts of the railway. It is understood that any land bought by the Chinese Railway Administration with their own money outside of the survey limits, but needed for future requirements, shall be on the Chinese Administration's own account, and no interest shall be allowed on the price thereof

It is further agreed that if the British and Chinese Corporation is called upon to provide means for the acquisition of the lands, whether by the sale of bonds or by advances from other sources, the Chinese Government guarantees to procure and protect all the lands that are required for the line of railway.

All lands the title-deeds of which are lodged with the Corporation as part of the first mortgage security of the loan shall not be disposed of in any way by hire, lease, or sale to any party for any purpose whatever without the written consent of the Chinese Administration.

It is also agreed that the lands thus bought, whether from Chinese or British advances, shall be free from all entanglements arising from the removal of graves or from prejudices of "fengshui," and shall be conveyed by full and sufficient deeds of assignment according to Chinese law, all of which are to be kept and recorded in the Shanghai office of the British and Chinese Corporation, and to be held by it as a first mortgage security for the bonds under the provisions of this Agreement until such time as principal and interest of the bonds, together with all indebtedness, shall have been paid off, when the same shall then be returned to the Chinese Railway Administration.

For the proper protection of the first mortgage security the Chinese Government undertakes that until the bonds shall have been redeemed, and the net profits on the net profit certificates shall have been paid, no part of the lands comprised in the mortgage security or the railway with its appurtenances shall be transferred or given to another party, or shall be injured, or that the rights of the first mortgage shall be in any way impaired.

It is likewise agreed that until the interest and principal of the loan and all indebtedness shall have been paid off, or unless with the express consent in writing of the Corporation, the Chinese Government or the Chinese Railway Administration shall not again mortgage the above properties to another party, whether Chinese or foreign.

During the period of this agreement no special taxes shall be levied by the Chinese Government on the railway, its appurtenances or earnings, but all taxes at present payable, such as land tax, as well as any taxes which the Chinese Government may hereafter institute, such as stamp duty, etc., and which may be applicable generally to all commercial transactions in China, shall also apply in the case of the railway and its operations.

The first expense in railway construction being the purchase of land, it is agreed that as soon as the survey is made the Corporation shall advance to the Railway Administration sums as required to pay for the land purchased. For such advances the Woosung Railway, with all its property, shall be given as first mortgage security, and interest at the rate of 6 per cent. per annum shall be allowed until the first portion of the loan has been floated, when such advances shall be repaid from the first proceeds of the loan.

As owing to the unwillingness of owners to sever their land it may become necessary for the Railway Administration to acquire more land than is actually necessary for railway purposes, the Railway Administration may do so in view of future requirements, but it is understood that any land bought from funds so advanced, out of the survey limits, shall be on the Chinese Administration's own account. When the purchase of all the land is completed, and the total amount thus expended is ascertained, an additional issue of bonds for an amount not exceeding £250,000, including the £150,000 referred to in this Article, shall be made in order to repay the sums spent in the purchase of land.

Such bonds shall be similar to the bonds mentioned in Article 1 of this Agreement, and shall have the same guarantee and same mortgage security and same treatment, with, however, this difference, that they shall be redeemable at par at any time on giving six months' notice, and that the rate of interest shall be 6 per cent. per annum. The interest on such portions of this loan as is applied to the purchase of land outside of the Engineer-in-Chief's survey shall in the first place be paid out of the Chinese share of the net profits of the railway, and failing this then out of the earnings of the railway.

As the object which the Railway Administration has in view is that all railway lands should be Chinese property, the additional loan of £250,000 shall be paid off as soon as practicable. Nevertheless, although such bonds may be redeemed, the land occupied by the railway within the survey limits shall continue as mortgage security under the terms of this Agreement.

Article 8.—It is agreed that if the half-yearly interest of the bonds is not paid on any

due date thereof, or if the principal of the loan remains unpaid at maturity of the same, the whole railway with all its appurtenances herein mortgaged to the British and Chinese Corporation for the bondholders shall be handed over to the Corporation to be dealt with by it according to law, in such manner as will ensure the proper protection of the interests of the bondholders. When the whole loan and the interest due thereon and all indebtedness shall have been paid off, the railway, with all its appurtenances, in good working condition shall revert to the possession and management of the Chinese, according to the provisions of this Agreement.

Article 9.—As remuneration for superintendence and services the Corporation shall receive 5 per cent. on the entire cost of all materials purchased for the railway.

It is agreed that all materials required for the railway shall be purchased in the open market at the lowest price obtainable, but it is understood that all such materials shall be of good and satisfactory quality. Invoice and inspector's certificates are to be submitted to the Chinese Administration.

With a view to encouraging Chinese industries Chinese materials are to be preferred, as also the products of the Han-yang Iron Works, provided price and quality are suitable.

No commission will be allowed to the Corporation on the purchase of materials except as herein provided. All trade discounts or rebates, if any, are to go to the construction account.

Article 10.—In the construction of the line, in the working of the railway, and in the performance of the different kinds of business connected with the railway, no interference or obstruction by Chinese or foreigners will be permitted. The Chinese Government will provide protection for the line while in construction or when in operation, and all the properties of the railway, the combined enterprise of the Chinese Administration and British and Chinese Corporation, as well as all foreigners and Chinese employed therein, are to enjoy the utmost protection from the local officials, civil and military, in the provinces through which the railway passes, particularly on occasions of local disturbance or of obstruction by natives.

The Board of Commissioners are authorised to maintain a railway police of Chinese with Chinese officers for the protection of the line. Their wages and maintenance are to be wholly defrayed by the railway. In the event of the railway requiring further protection by the military forces of the Imperial or Provincial Government the same will be duly applied for by the Director-General and promptly afforded, it being understood that such military forces, although transported free by the railway, are to be maintained at the expense of the Government or the Province, as the case may be.

The railway police may not interfere with matters outside the railway.

Article 11.—In connection with the railway there shall be established and maintained a proper signalling service, which shall include such telephone and telegraph conveniences as may be found necessary to use along the line of the railway and its branches for the exclusive purpose of regulating the movement of trains and other incidental business of the railway, and such telephones and telegraphs shall not be used in or interfere with the rights and privileges of the Telegraph Administration.

It is further agreed that the Corporation may, in consultation with the Director-General, also establish and maintain in connection with such railway or its branches such other necessary adjuncts of modern railway operation as it may find expedient for the support of the railway, such as repair and manufacturing shops, docks, steamers, ferries, storage warehouses, etc.

Article 12.—It is agreed that after deducting from the income of the railway the working and other expenses as described below, the Corporation shall receive 20 per cent. of the net profits, to be represented by and in form of certificates to an amount equal to one-fifth of the cost of the line. These certificates carrying no interest, they are to have a term of fifty years and a declared face value of £100 each, and are to be issued to the Corporation at the same time as the loan bonds, and in amount proportionate to the respective series of such bonds to the amount of one-fifth of the aggregate thereof. And it is understood that if there is an issue of the loan bonds in excess of the requirements of the railway, and such excess is retired or cancelled, a like proportion of these certificates shall likewise be subject to retirement.

Before the expiration of the term of fifty years the Chinese Administration shall have the right at any time to redeem these certificates at their face value. After the expiration of fifty years the certificates shall be null and void and need not be redeemed, but if any net profits shall have accrued on such certificates prior to their redemption or maturity, said accrued net profits must be paid before the same are cancelled.

The Chinese Railway Administration is entitled to issue and receive like net profit certificates (to be in form appropriate for use in China and unlimited in their term, as also without redemption features) to an amount equal to the remaining four-fifths of the loan. These Chinese certificates may be issued in whole or in part whenever desired by the Director-General, but the net profits will be retained and used by the Railway Administration for the purpose of accumulating a fund to be derived from such share of net profits as may accrue thereon wherewith to pay off any loan bonds which may from time to time be redeemed under the provisions of this Agreement, or for generally reducing or ultimately discharging railway loan obligations whenever or wherever desirable by means of the profits of the railway. But such Chinese certificates may, however, be used in part by the Railway Administration if necessary in payment of lands which are essential to the railway, and which cannot otherwise be conveniently acquired by it.

The yearly income of the railway shall be subject to a deduction of all working expenses, cost of maintaining and repairing the railway, renovating or replenishment of engines and rolling-stock, and all expenditure connected with the business of the railway, and subject to the payment of interest on the bonds at 5 per cent. per annum (and of interest of 6 per cent. per annum on the cost of the land provided by the Chinese Administration, or provided by an advance from the British and Chinese Corporation), whatever is left of the gross income is considered to be net profits, of which one-fifth is to be given to the Corporation for disposal as it may see fit. If the loan bonds shall have been all redeemed according to the provisions of this Agreement before the net profit certificates issued to the Corporation have been redeemed, or shall have lapsed by effluxion of time, the Corporation shall be permitted to have a representative in the railway office (whose salary is to be paid by the Railway Administration) to inspect the accounts of the railway.

The duties of this officer are those of an Accountant who is to protect the interests of the foreign holders of net profit certificates until such time as these certificates shall have all been redeemed or lapsed by effluxion of time, when the services of such Accountant shall be dispensed with.

PAOTING FU STATION ON THE PEKING-HANKOW

Article 13.—The British and Chinese Corporation are hereby appointed trustees for the bondholders and holders of net profit certificates, and in any future negotiations respecting these loans or matters arising in connection therewith, which may take place between the Railway Administration and the Corporation, the latter Corporation shall be taken as representing the bondholders and holders of net profit certificates, and as empowered to act on their behalf.

Article 14.—All materials of any kind that are required for the construction of the main line or branch lines, whether imported from abroad or from the provinces to the scene of the work, shall (following the precedent of the Northern Railway) be exempted from Customs duty and likin. The bonds of this loan together with their coupons, the net profit certificates and the income of the railway, shall be free from imposts of any kind by the Government of China.

As to the likin for goods or passengers which may be transported over the lines from, to, or through the different provinces, the Director General will confer with the Government Bureau of Mines and Railways and the Board of Revenue with a view to devising means to protect the traffic of the railway, and those who may use the railway for the transport of their goods, from illegal impositions and other abuses.

If the arrangements for the levy of likin over other railway lines is found to be more advantageous than that of the railways mentioned in this Agreement, the same advantages shall be extended to and enjoyed by the Shanghai-Nanking Railway, and by those who make use of the same.

Article 15.—It is agreed that during the time of the construction of the line the yearly 5 per cent. interest on the bonds and 6 per cent. interest on the amount spent in the purchase of the land are to be paid from the proceeds of the loan. The accruing interest from any proceeds of the loan not used during the period of construction, and the earnings from the working of any sections as they are built, are to be used to make up the amount required for the payment of the said interest, and if any

deficiency remains it is to be met from the proceeds of the loan.

When the construction of the line is wholly completed the interest on the bonds and on moneys spent in purchasing the land are to be paid from the earnings of the line every half-year on the first day of June and first day of December.

It is hereby agreed that the amount required for the payment of interest and repayment of principal, together with a sum of one-quarter of 1 per cent. on such amounts to cover commission to the Hongkong and Shanghai Banking Corporation, who are hereby appointed agents for the service of repaying the loan, shall be paid to them in Shanghai fourteen days before the due dates, in Shanghai sycee sufficient to meet such payments in sterling in London, exchange for which shall be settled with the Hongkong and Shanghai Banking Corporation on the said date of payment at the rate fixed at the time of settlement.

The Chinese Government undertakes and hereby promises to pay the principal of the loans and the interest on the loans on the due dates fixed therefor. If at any time the earnings of the railway and proceeds of the loan are not sufficient to pay the interest of the bonds, the Railway Administration is to devise means for supplying the deficiency; and should its inability to do so appear probable the Director-General will memorialise the Government to take measures to make up the deficiency from other sources, and thus be ready to pay off the indebtedness, so that the required amount may be placed in each case at least fourteen days previous to the due date of such interest in the hands of the Hongkong and Shanghai Banking Corporation in Shanghai.

Article 16.—In places along the line of railway where the Hongkong and Shanghai Banking Corporation has no agencies, and where it does not intend to establish any agencies, business relations are to be cultivated with the Chinese Imperial Bank and its local agencies, it being the intention of the British and Chinese Corporation to utilise the Imperial bank as much as practicable for facilitating the movement of funds.

Article 17.—The Corporation may, subject to all its obligations, transfer or delegate all or any of its rights, powers, and discretions to their successors or assigns, but the Corporation, which is a Corporation formed under English law, shall not transfer its rights under this Agreement or the management of the railway to other nations or people of any nationality except British or Chinese. Similarly the Railway Administration shall not transfer any of its rights under this Agreement to persons of other nationality.

It is further agreed that without the express consent in writing of the Director-General and the British and Chinese Corporation no other rival railway detrimental to the business of the same is to be permitted, and no parallel line to the Shanghai-Nanking Railway is to be allowed to the injury of the latter's interest within the area served by the Shanghai-Nanking main line or branch lines.

Article 18.—If on account of contingencies beyond the control of the Corporation, such as war or very great political changes in China or elsewhere, occurring before the publication of the prospectus of the issue of an important series of bonds of the loan hereby concerned, the foreign money markets are affected, or the construction of the railway is so obstructed that work cannot be carried on, the Corporation will be allowed a reasonable extension of time for floating such loan or the bond issues thereof, or for the commencement or completion of the construction of the railway. But if bonds have already been issued and interest already become payable thereon, then the work cannot be suspended or postponed unless subject to the exceptions mentioned in the preceding paragraphs.

When the Agreement has been ratified the work shall be begun as soon as possible, and if the Chinese Railway Administration desire, each section will be pushed on as rapidly as practicable. From the date of ratification a limit of five years shall be allowed for the completion of the whole line, subject to the preceding exceptions mentioned in this Article; and if this period is exceeded, unless with the consent of the Chinese Administration, the Corporation shall forfeit its one-fifth share of net profits already earned during the previous five years, and shall not begin to participate in such net profits until the line has been completed.

Article 19.—In the working of the railway the tariff for fares and freights is to be prepared by the General Traffic Manager, and submitted to the Board of Commissioners, who shall, after due consideration of existing tariffs of other railways in China, approve an economical rate.

The General Traffic Manager is likewise authorised to make arrangements, subject to the approval of the Board of Commissioners, with connecting railways of other companies for through rates of fare and freight.

In case of military operations, whether on account of foreign war or internal insurrection, the movement of troops, ammunition, and stores, by the Chinese Government, and in case of famine or other great calamity, the despatch of relief shall, on the requisition of the Director-General, have preference over the line at half of the tariff rates.

Nothing to the injury of China shall be allowed to be carried over the line, neither shall the line be used to the detriment of China.

Article 20.—In the Preliminary Agreement, dated 13 May, 1898 (23rd day of intercalary 3rd Month of the 24th Year of Kwang-Hsu), it is stipulated that the Railway Administration has the right to redeem the loan at 102½ after twelve and a half years, and at par after twenty-five years. It is now agreed that if at any time after the lapse of twelve and a half years from the date of the issue of the bonds the Chinese Railway Administration receives instructions from the Chinese Government to cancel any of the bonds or any of the net profit certificates, the Director-General shall, not less than six months previous to the proposed redemption, notify in writing the Agent of the Corporation in Shanghai declaring the number of bonds or the number of net profit certificates so required to be redeemed and cancelled.

The Agent of the Corporation shall immediately on the receipt of such notice in writing proceed to make arrangements for the desired redemption by drawing lots, and taking other proper steps in the way customary in London, of the number of bonds or net profit certificates in such quantity as may be required. And as soon as the Railway Administration, under instructions from the Chinese Government, shall remit the proper amount according to the redemption price of the bonds or the redemption price of the net profit certificates, together with the interest due on the bonds, or the net profits due on the certificates, a notice shall be published in two of the most prominent papers in London, and in such other financial centres as may be agreed upon with the Chinese Minister for four weeks. At the expiration of the four weeks, and on the day fixed for the redemption, the Corporation shall cause the usual lots to be drawn for the redemption of the bonds or certificates, and shall pay over the respective prices of the same to their respective holders, and shall thus redeem the bonds or net profit certificates and cancel them, and thereupon the same are to be delivered to the Director-General, or the Chinese Minister in London, for return to the Director-General.

All the loan bonds and the net profit certificates shall express that they are redeemable at any time on the conditions mentioned in the preceding paragraph, and shall state that the payment of any interests for the bonds, and of the participation of any of the net profits by the certificates so drawn by lot, entirely cease from the date entioned by the published notice of the Corporation. The amount required for the redemption shall, however, have to be got ready and placed in the hands of the Hong-Kong and Shanghai Banking Corporation before such redemption is carried out.

The loan bonds, if redeemed before twenty-five years from the date they were originally issued, shall be paid for with a premium of 2½ per cent. over their face value (*i. e.* £102, 10s. will be required to pay £100), but after twenty-five years from the date of issue to the expiry of the term of the loan the bonds may be redeemed without payment of any premium. If any interest is still due on any of the bonds at the time of redemption, such interest shall have thereupon to be paid in full. As to the net profit certificates, if they are redeemed within the term of their duration they are to be paid for according to their face value, and such certificates run to the end of their term they become null and void and no price need be paid on them, nor need they be redeemed, but any net profits still due on them shall have to be fully paid up according to their amounts before the same are cancelled.

Article 21.—If any proceeds of the sale of bonds are lying unused and bearing interest on their deposit whilst the construction of the railway is going on, such interest is to go to the general account of the Chinese Railway Administration, in order that the Railway Administration may enjoy the full advantage thereof.

It is also agreed that if the Corporation shall find it necessary, before the sale of any of the bonds, to advance any money for the work, the expense of effecting such advances, together with the interest thereon, not exceeding a charge of 6 per cent. per annum, shall be deducted from the interest derived from the above mentioned unused proceeds of the sale of the bonds, or otherwise to be provided for in the construction accounts. It is further agreed that the proceeds of the first sale of the bonds immediately following any such advance shall be used to pay off the said advances, so as to save the cost of the aforesaid charge.

Article 22.—If any of the bonds still remain unredeemed, when the fifty years of the term of the loan are about to expire, the Director-General will, within two years preceding the expiry of the said term, negotiate by writing with the Corporation for an extension of the term of the loan; and if six months shall have expired after such negotiations in writing and no definite arrangements shall have been come to, the Chinese Government shall be at liberty to take steps to devise means for procuring elsewhere funds to pay off the loan, and to redeem the bonds and cancel the mortgage.

Article 23.—The existing Woosung-Shanghai line (as soon as the price agreed upon is ready to be handed over to the Railway Administration) shall be taken over as part of the Shanghai-Nanking system, and the earnings and administration of this section shall be treated in like manner as the Shanghai-Nanking line. The price of the Shanghai-Woosung line shall be taken as Tls. 1,000,000, and this amount shall be paid to the Chinese Railway Administration out of the proceeds of the loan.

Article 24.—Immediately after the signature of this Agreement, and before the issue of any prospectus of the loan to the public, the Director-General shall memorialise the Throne and obtain an Imperial Edict confirming and sanctioning the provisions of this Agreement. The Imperial Edict so received shall then be officially communicated without delay to the British Minister in Peking by the Wai-Wu-Pu.

Article 25.—This Agreement is executed in quintuplicate in English and Chinese, one copy to be retained by the Railway Administration, one by the Wai-Wu-Pu, one by the Bureau of Railways and Mines at Peking, one by the British Minister in Peking, and one by the Corporation, and should any doubt arise as to the interpretation of the Agreement the English text shall be accepted as the standard.

Signed at Shanghai by the Contracting Parties this fifteenth day of the intercalary fifth month of the twenty-ninth year of the Emperor Kwang-Hsu, being the ninth day of July nineteen hundred and three of the Western Calendar.

TIENTSIN-CHINKIANG (NOW NANKING) RAILWAY: PRELIMINARY AGREEMENT.

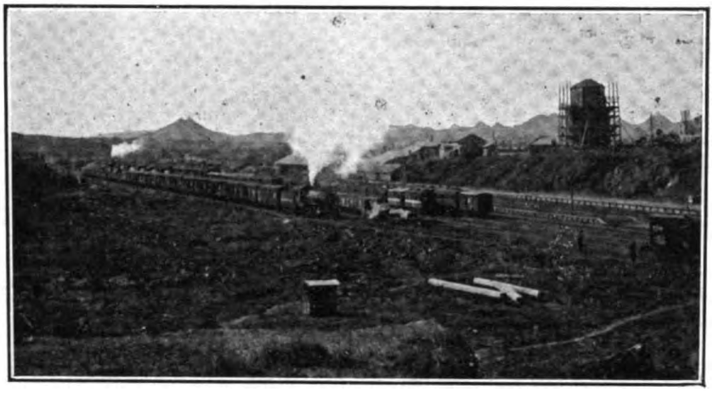
This Preliminary Agreement relating to the construction of railways between Tientsin and Chinkiang, is made between their Excellencies Hsu and Chang; duly authorized to act on behalf of the Imperial Government of China, hereinafter called "the Imperial Directors" of the one part; and (*a*) the Deutsche-

Asiatische Bank; (*b*) the Hongkong and Shanghai Banking Corporation for themselves and on behalf of Messrs. Jardine, Matheson & Co., as joint agents for the British and Chinese Corporation Limited, hereinafter called "the Syndicate" of the other part.

1. The Imperial Government of China authorizes the Syndicate to issue an Imperial Government 5 per cent. gold loan for an amount of about £7,400,000, this amount being subject to modification later after the completion of survey.

2. The loan is designed to provide the capital for the construction of Government railway lines from a point at or near Tientsin, through Titchow and Tsianfu to Thsien near the southern frontier of Shantung, hereinafter known as the northern part of the Tientsin-Chinkiang Railway lines, and from Thsien to Kuachao (Chinkiang) on the Yangtze Kiang, hereinafter known as the southern part of the Tientsin-Chinkiang Railway lines, the total length of these lines being about 982 kilom., equal to about 1800 Chinese li.

3. The capital so provided will include the funds required for rolling-stock and other equipment, and for working the lines, together with interest on the loan during the period of construction, which is estimated to occupy about five years from the date of the loan, but which will finally be fixed after survey.



1926.—VIEW OF CONSOLIDATED ENGINE BUILT BY THE AMERICAN LOCOMOTIVE CO. HAULING TRAIN OF AMERICAN CARS INTO TAIREN YARD

4. The rate of interest for the loan shall be 5 per cent. per annum on the nominal principal, and shall be paid during the time to be fixed for the construction out of the proceeds of the loan, and afterwards out of the revenue of the lines named, in half-yearly instalments, according to the amounts and dates of a schedule which will be attached to the Final Agreement.

5. The term of the loan shall be fifty years. Repayment of principal shall commence in the eleventh year from the date of the loan, and shall be made by a yearly sinking fund in shares to be determined in the Final Agreement to the Deutsche-Asiatische Bank, and the Hongkong and Shanghai Banking Corporation in yearly instalments out of the revenue of the lines according to the amounts and dates of the schedule to be attached to the Final Agreement.

6. In the event of the Imperial Government of China wishing to redeem, after the lapse of thirty years from the date of the loan, the outstanding amount of the loan, or any portion of it not yet due, from funds *bona fide* belonging to the Chinese Government or subscribed by Chinese merchants, the conditions for such redemption must first be arranged with the Syndicate when the time arrives.

7. The yearly payments due for amortisation and the half-yearly payments due for interest, except as otherwise provided in Clause 4, shall be made in accordance with the amounts and dates of a schedule to be attached to the Final Agreement, in shares to be determined by the Final Agreement, out of the joint net revenues of the railway lines to the Deutsche-Asiatische Bank and the Hongkong and Shanghai Banking Corporation by the Boards of Commissioners hereinafter mentioned, who shall hand to those banks, at their branches in Shanghai, twenty-one days before the due date named in the schedule, funds in Shanghai sycee sufficient to meet such payment in sterling in Europe, the rate of exchange for which shall be settled with those two banks on the same day on a fair basis.

In reimbursement of expenses connected with the service of interest and principal of the loan, the two banks will receive a commission of ¼ per cent. on the annual loan service.

8. The Imperial Government of China hereby engages that the interest and principal of this loan shall duly be paid in full, and should the revenues of the railways not be sufficient to provide for the due and full payment of interest and repayment of principal of this loan the Imperial Directors must memorialize the Throne, and the Imperial Government of China will then make arrangements to ensure that the amount of deficiency shall be met from other sources and handed over to the banks twenty-one days before the due date of the funds required to complete full payment of interest and repayment of principal.

This clause to be open to reconsideration in the Final Agreement.

9. This entire loan shall be secured by a first mortgage on the permanent way, rolling-stock, and entire property, together with the revenue of the lines named in Clause 2. No further loan, charge, or mortgage shall be charged on this security, except with the written consent of the two banks, until the present loan is returned. In the event of default in payment of interest or repayment of principal of this loan on due date the railway lines and property so mortgaged shall be handed over to the Syndicate, to be dealt with in such a manner as may be legal and necessary for the full and effective protection of the bondholders. When the loan is completely redeemed, Clause 29 of this Agreement shall take effect.

10. The Syndicate will be authorized to issue to the subscribers to the loan, bonds for the total amount of the loan in pounds sterling in such form, in such languages, and for such amounts as shall appear advisable to the Syndicate, and these bonds shall be sealed in China by the Imperial Directors and in Europe by the Minister for China, in Berlin or London, as evidence that the Imperial Government of China is bound thereby as debtor of the loan. Provision will be made in the Final Agreement for the case of bonds lost, stolen, or destroyed.

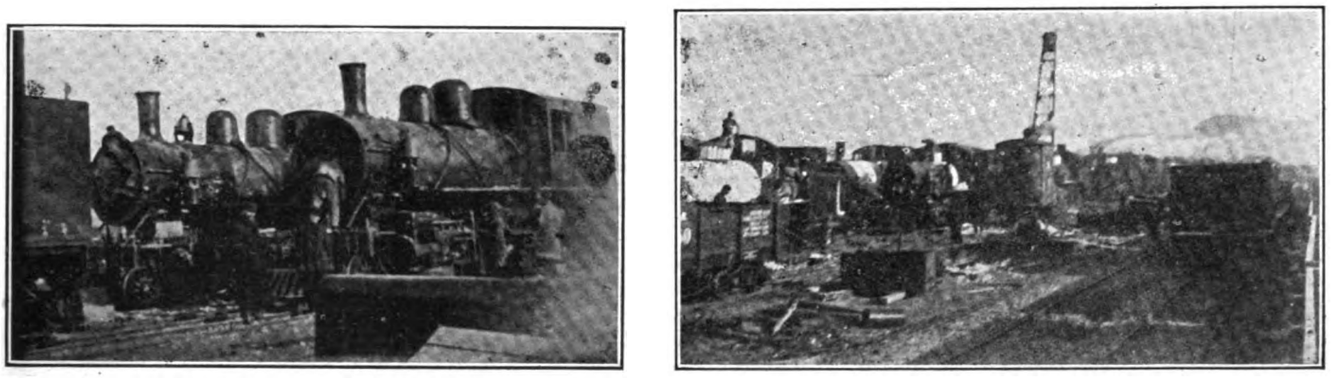
11. All bonds and coupons and payments made and received in connection with the service of this loan shall be exempt from all Chinese taxes and imports for ever.

12. All details necessary for the prospectus and connected with the service of the interest and repayment of the principal of this loan, not explicitly provided for by the Final Agreement, shall be left to the arrangement of the Syndicate, who will be autho.ized to issue a prospectus of the loan as soon as possible after the signing of the Final Agreement.

The Imperial Government of China will instruct the Chinese Ministers in Berlin and London to co-operate with the representatives of the Syndicate in any matters requiring conjoint action, and the Chinese Minister in Berlin will sign the prospectus of the loan as required by the Rules of the Berlin Stock Exchange.

13. The loan shall be floated in one or more series at the discretion of the Syndicate, due regard being had to the interest of China; but the floating of the loan shall not be delayed more than necessary, subscriptions being invited by the Syndicate in Europe and in China from both European and Chinese on equal conditions.

14. The price of the loan shall be 90 per cent. net on the nominal principal to the Chinese Government. The proceeds of the loan shall be paid to the credit of a Tientsin-Chinkiang Imperial Government Railway account with the Hongkong and Shanghai Banking Corporation, London. The payment into the credit of these accounts shall be made in such instal-



ROLLING STOCK IN ERECTION YARD AT TAIREN—200 ENGINES AND HUNDREDS OF BROAD GAUGE CARS ASSEMBLED HERE

ments and on such dates as the conditions allowed to the subscribers to the loan shall admit.

Interest at a rate to be arranged from time to time shall be granted on the credit balance of the railway accounts.

After deduction of the funds required for the service of interest and for commission on this service during the time of construction, the Deutsche-Asiatische Bank will hold the proceeds with accrued interest to the order of the Board of Commissioners appointed for the northern part of the Tientsin-Chinkiang Railway lines, and the Hongkong and Shanghai Banking Corporation will hold the proceeds with accrued interest to the order of the Board of Commissioners appointed for the southern part of the Tientsin-Chinkiang Railway lines. The Commissioners, in drawing the sums necessary for the construction, shall give notice to the banks fourteen days before the day on which they are required.

15. If during the time of construction the whole amount of the instalments with accrued interest to be paid by the Syndicate should, after deduction of the sums necessary for the service of interest on the loan, not be sufficient for the construction of the railway lines, the amount of deficiency shall be provided by a supplementary loan to be issued by the Syndicate, the interest and other conditions of which are to be the same as in this Agreement, but the price must be arranged when the time arrives.

If after the completion of the lines there should be a balance at credit of the Tientsin-Chinkiang Railway account, the Syndicate shall transfer such unused balance to the credit of the loan service reserve fund, hereinafter mentioned as a provision for payments to which the Government is bound by Clause 8 of this Agreement.

16. If before the publication of the prospectus for the issue of the loan any political or financial crisis should take place in Europe or elsewhere, by which the markets and the prices of existing Chinese Government stocks are so affected as to render the successful issue of the loan impossible on the terms herein named, the Syndicate shall be granted such extension of time for the performance of their contract as the circumstances demand, or shall have the right to withdraw from their contract with the Chinese Imperial Government, which shall in that case become null and void.

17. The Deutsche-Asiatische Bank on the one side, and the Hongkong and Shanghai Banking Corporation for themselves, and on behalf of Messrs. Jardine, Matheson & Co., as joint agents for the British and Chinese Corporation Limited, on the other side, shall take the loan in shares to be agreed upon by the Syndicate, and without responsibility for each other.

18. The northern part of the railway lines shall be constructed, equipped, and worked on behalf of the Imperial Chinese Government by the Deutsche-Asiatische Bank, and the southern part of the railway lines shall be constructed, equipped, and worked on behalf of the Imperial Chinese Government by the British and Chinese Corporation Limited, under conditions as follows:—For each of these parts a Board of Commissioners shall be appointed to superintend the construction, equipment, and working of the railway lines in accordance with regulations to be arranged between the Imperial Directors and the Deutsche-Asiatische Bank and the British and Chinese Corporation Limited.

19. An office shall be provided for the Imperial Directorate, and a head office shall be established for each Board of Commissioners. The Board of Commissioners for the northern and southern parts of the lines respectively, appointed to superintend the construction and administration, shall each consist of five members, two Chinese managers representing the Imperial Directors and nominated by them, and three European members, namely, a representative of the Bank concerned, the Manager and the Chief Engineer, to be nominated by the Deutsche-Asiatische Bank, and the British and Chinese Corporation Limited.

In case any foreign or Chinese members of the Boards of Commissioners do not work well together, it shall be open to the Imperial Directors, the Deutsche-Asiatische Bank, and the British and Chinese Corporation Limited, to mutually discuss means to arrange and deal with the matter.

The foreign and Chinese railway staff, including a Ti-tiao, shall be appointed by the Boards of Commissioners, who will report the appointment to the Imperial Directors. In the event of an important appointment the two Chinese members of the Boards may first consult the Imperial Directors.

The principal members of the railway staff shall be capable and experienced Europeans, but Chinese with sufficient experience in engineering or traffic may also be appointed.

Foreign and Chinese members of the railway staff shall, in the event of incapacity or misconduct, be dismissed by the Boards of Commissioners, who will inform the Imperial Directors of the same.

The salaries of the five members of each Board of Commissioners and of the foreign and Chinese railway staff shall be arranged by the Deutsche-Asiatische Bank, the British and Chinese Corporation Limited, and the Imperial Directors, and paid by the head office of their respective sections.

20. The plans, estimates, and all matters relating to survey must be submitted for approbation to the Board of Commissioners. The Chief Engineer shall indicate to the Chinese Commissioners the land which it is necessary to purchase, and which must be sufficient for the construction of a permanent way with double lines and dependencies, and the Chinese Commissioners shall thereupon effect such purchases at a price to be based on a scale to be arranged after survey. In the event of the route proposed by the Chief Engineer passing through towns, villages, graveyards, or other points where much obstruction is encountered, the Chief Engineer will, together with the Board of Commissioners, consider means of diverting the proposed railway route in order to avoid difficulties.

21. After completion of the survey and due inquiry as to the prevailing provincial likin and customs dues, the Imperial Directors will arrange with the Deutsche-Asiatische Bank and the British and Chinese Corporation Limited, regulations for the payment of likin and duty upon merchandise and live stock in transit over the railway lines.

22. All materials necessary for the construction and working of the lines, obtained elther from foreign countries or from other provinces of China, and the revenues derived from the railway, shall be exempt from duty or taxation of all kinds, and the Imperial Government of China will instruct the customs and likin authorities accordingly.

All material, plant, and goods shall be ordered from the Deutsche-Asiatische Bank and the British and Chinese Corporation Limited, on conditions to be arranged in the Final Agreement.

The plans, estimates, and requisitions for materials shall be submitted to the Board of Commissioners by the Chief Engineer for reference at their discretion to the Imperial Directors, and the same shall be furnished by the Deutsche-Asiatische Bank and the British and Chinese Corporation on the best possible terms.

Due consideration will be extended to materials from the Hanyang Iron Works, if available when required, and of a quality satisfactory to the Chief Engineers of the Syndicate.

23. The Deutsche-Asiatische Bank and the British and Chinese Corporation Limited shall, during the working of the lines, maintain the railways, buildings, works, rolling-stock and dependencies in good order and condition.

24. Branch lines or extensions in connection with the Tientsin-Chinkiang Railway lines that may appear profitable or necessary later on shall be the subject of negotiations between the Imperial Directors and the Syndicate.

25. The tariff to be introduced by the European Manager shall be approved by the Boards of Commissioners, who will take into consideration the tariffs of other existing railway lines in China, while keeping in view the necessity for attracting traffic. The European Manager may also be instructed to enter into arrangements for tariffs on through traffic connecting lines. In case of war, foreign or internal, the railway lines shall be reserved in the first instance for the transport of Chinese troops, commissariat, and munitions of war under the order of Imperial Directors, and at half the ordinary tariff rates, and the railways shall not engage in any service injurious to China. In case of famine, grain will also be transported over the lines at half the ordinary tariff rate, under orders of the Imperial Directors.

26. All payments made and received in connection with the railway lines will be subject to the control of the Boards of Commissioners, and after the line is working estimates of receipts and expenditure shall be similarly submitted to the Boards. Regular accounts shall be furnished through the Imperial Directors to the Railway and Mining Bureau of the Tsung-li Yamen and the Board of Revenue, Peking. All payments made must be represented by Chinese or foreign vouchers as the case may be.

27. The profits from working completed sections of the railways during the time of construction shall be credited to railway construction account.

28. Should any traffic business be apparent later on as likely to benefit the Imperial Government of China and increase the earning power of the railway lines, the Deutsche-Asiatische Bank and the British and Chinese Corporation Limited shall represent the same to the Imperial Directors, and request them to obtain the necessary authority to arrange the business.

29. The Deutsche-Asiatische Bank and the British and Chinese Corporation Limited shall work the lines on behalf of the Imperial Government of China until the present loan is redeemed. As soon as the loan has been completely redeemed this Agreement shall become null and void, and the railway lines and property named in this Agreement shall be handed over to the absolute disposal of the Chinese Government.

30. The annual net revenue is understood to be that resulting from the gross receipts of the passengers and goods traffic and the income from other sources, after deducting all working expenses, including maintenance of the permanent way, repairs and renovation of machinery and rolling-stock, and all expenses of administration, besides deducting an amount to be determined by the Deutsche-Asiatische Bank and the British and Chinese Corporation Limited as sufficient for accumulating a reserve fund for extraordinary improvements or repairs. Of the surplus of the joint net annual revenue of the northern and southern railway lines, after payment of interest and repayment of principal of the loan, first, a participation of 20 per cent. will be granted to the Syndicate in remuneration for their management of the construction and the working of the railway lines; secondly, an amount equal to 10 per cent. of the gross earnings will be transferred to a loan service reserve fund, deposited with the two Banks, and the remainder will be at the disposal of the Imperial Government of China. An account of the said loan service reserve fund will be rendered yearly to the Railway and Mining Bureau of the Tsung-li Yamen and to the Board of Revenue, and the fund will be drawn upon only in the case of the revenue of the railway lines being insufficient to meet the service of interest and principal of the loan. On redemption of the loan being completed the balance of this fund will revert to the Chinese Government.

31. The powers and authority given and delegated to the Imperial Directors by the Imperial Government of China shall, in the case of their promotion or removal, be transferred to their successors, and the Deutsche-Asiatische Bank and the Hongkong and Shanghai Banking Corporation, Messrs. Jardine, Matheson & Co., and the British and Chinese Corporation Limited, may, subject to all their obligations, transfer or delegate all or any of their rights, powers, and discretions to any German or English Company, directors, or

agents, with or without power of further transfer and sub-delegation.

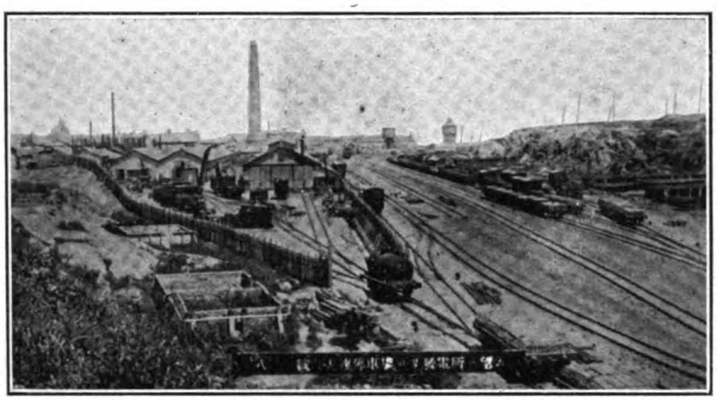
32. Differences arising between the Imperial Directors and the Syndicate will be taken up and decided with equity and justice by the Tsung-li Yamen on the one side, and the Minister for Germany and the Minister for Great Britain in China on the other side.

33. As soon as possible after the signature of this Agreement the Engineers of the Syndicate will be authorized by the Imperial Chinese Government to survey and report upon the proposed railway lines, when, subject to such report being satisfactory to the Syndicate, this Preliminary Agreement will be ratified by the Syndicate and replaced by a Final Agreement containing all necessary details. Modifications in the conditions of this Preliminary Agreement may be made, subject to the consent of both parties.

34. The provisions of this Preliminary Agreement shall, immediately after signature, be ratified by an Imperial Edict (*) which shall be communicated by the Tsung-li Yamen to the Ministers for Germany and Great Britain in Peking.

35. Five sets of this Agreement are executed in English and Chinese, one set to be retained by the Tsung-li Yamen, one by the Railway and Mining Bureau, and one by each Contracting Party.

In the event of any doubt arising regarding the interpretation of the Contract, the English text shall rule.



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SOUTH MANCHURIA RAILWAY'S OLD SHOPS AT TAIREN (DALNY)

CONTRACT FOR BUILDING A RAILWAY FROM KAI-FENG FU TO HO-NAN FU. (Signed at Shanghai, 1904.)

Between the undersigned:

1. The Imperial Chinese Railway Company, represented by H. E. Sheng Kung Pao, Director-General, duly authorized by the Chinese Government.

2. La Compagnie Générale de Chemins de Fer et de Tramways en Chine, represented by Monsieur Armand Rouffart, its delegated Administrator, provided with full powers.

It has been agreed as follows:

Article 1.—The Director-General of the Imperial Chinese Railway Company, H. E. Sheng Kung Pao, has asked, in a report, the Chinese Government that a line of railway should be built starting from a point called Yung Tse on the railway line of the Luhan where the latter crosses the river. From that point eastward to Kai-feng the line will be 170 li long, and westward to Ho-nan Fu it will cover 250 li. These two branches of the Luhan to be built by a Belgian party (groupe), which will make a loan to build them.

This proposal was accepted by a decree dated the 30th day of the 10th moon of 25th year of the present reign.

Monsieur Rouffart, the representative of La Compagnie Générale de Chemins de Fer et de Tramways en Chine, has asked us by letter to undertake this building, and we sent a Chinese official to accompany him in his preliminary study on the ground. After said study, Monsieur Rouffart estimated the probable cost of these two branches at one million pounds sterling, or 25,000,000 francs; and for all other terms the contract from Peking to Hankow are to be followed.

Under date of the 29th day of the 12th moon of the 28th year of the present reign the Wai-Wu-Pu wrote to me that I was to discuss the terms of the contract with Monsieur Rouffart, and it asked me to settle the matter as promptly as possible.

Considering that Monsieur Rouffart has full powers from the Compagnie Générale de Chemins de Fer et de Tramways en Chine to negotiate this business for it, we, Director-General of the Imperial Chinese Railway Company, and Monsieur Armand Rouffart, representing the Compagnie Générale de Chemins de Fer et de Tramways en Chine, hereby enter into a contract for a loan, the product of which shall be applied to the building of the Railway from Ho-nan Fu to Kai-feng Fu.

Before signing the contract the Director-General of the Imperial Chinese Railway Company has submitted said contract for Imperial sanction, and it has been approved under date of ———.

This decree shall form Annex 1 of the present contract. In virtue of the above the Director-General, on account of the Chinese Government, makes a gold 5 per cent. loan for the sum of 25,000,000 francs, or 1,000,000 pounds sterling. This loan shall be known as the Chinese Government 5 per cent. Gold Foreign 1903 Loan (*Emprunt du Gouvernement Chinois 5 pour cent or Extérieur* 1903).

Article 2.—This loan shall be represented by 50,000 bonds of 500 francs gold each.

These bonds, the text of which is annexed to the present contract (Annex 2), shall be signed in the name of the Chinese Government by the Minister Plenipotentiary of China at Brussels.

They shall be delivered in fractional bonds (coupons) of 1 to 2 bonds, in such proportion as the Compagnie Générale de Chemins de Fer et de Tramways en Chine may request, the total number not to exceed 50,000; the expense of making these bonds shall be charged to the Compagnie Générale de Chemins de Fer et de Tramways en Chine. They shall bear 5 per cent. interest a year on the nominal capital payable in gold.

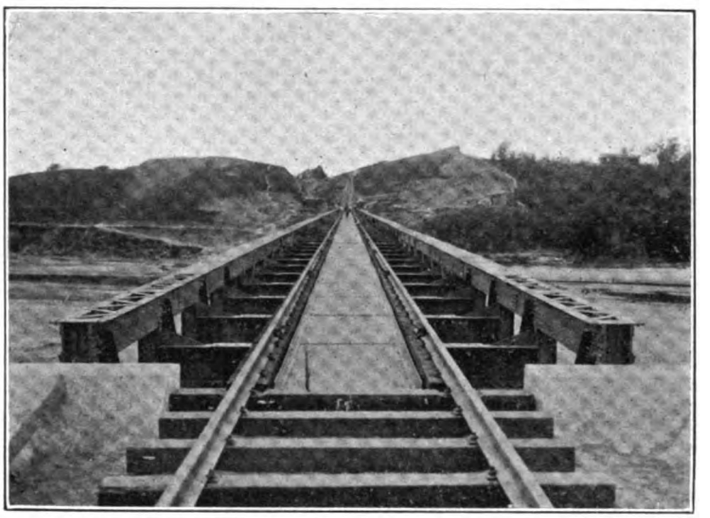
Interest shall run from the date of payment of the product (of the sale) of the bonds, and shall be payable the 1st January and 1st July of each year.

Coupons which have become due and have been paid shall be classed in numeric order by the Compagnie Générale de Chemins de Fer et de Tramways en Chine, and at its expense, and it shall then send them to the Imperial Chinese Railway Company at Shanghai to be cancelled. If the returned coupons are lost in transmission the Compagnie Générale de Chemins de Fer et de Tramways en Chine must publish the numbers of the paid and lost coupons in four different newspapers, and transmit to the Imperial Chinese Railway Company a declaration stating the loss.

Article 3.—The loan shall be redeemed in twenty years counted from the tenth year of issue, by the method of drawing by lots in the offices of the Compagnie Générale de Chemins de Fer et de Tramways en Chine, in accordance with the table annexed to the present contract (Annex 3). The drawings by lots shall take place on the third Wednesday of April in each year. The first drawing shall take place on that date beginning with the tenth year from the date of issue of the loan.

The numbers of the drawn bonds shall be published in four newspapers at the expense of the Compagnie Générale de Chemins de Fer et de Tramways en Chine.

Article 4.—The bonds drawn by lots shall be paid in gold at their par value on the date on which fall due the coupons following the date of the drawing. Bonds presented for refunding must have attached all coupons still unpaid, and the amount of missing coupons will be deducted from the capital to be reimbursed. Interest on bonds will cease to accrue from the day set for reimbursement. Paid off bonds shall be classified and sent back by and at the expense of the Compagnie Générale de Chemins de Fer et de Tramways en Chine to the Imperial



HANKOW RAILWAY

(*) The Edict was issued on the 24th May, 1899; vide Blue Book. China, No. 1 of 1900, p. 190.

Chinese Railway Company at Shanghai to be cancelled. If these bonds should be lost on the way, the Compagnie Générale de Chemins de Fer et de Tramways en Chine shall publish the numbers of the paid and lost bonds in four different newspapers, and transmit to the Imperial Chinese Railway Company a declaration stating the loss.

Article 5.—The Chinese Government denies itself the right, before the date fixed for the first amortisation, to fix a larger amortisation, or to refund the whole loan or to convert it. After that date it shall be free to refund the loan at whatsoever time it chooses before the dates of payment, and, the refunding made, all contracts shall be declared annulled.

Article 6.—Coupons and bonds shall be paid off in francs in the office or offices entrusted with the management of the loan.

Article 7.—Interest payment and the reimbursement of the bonds provided for in the present loan shall be guaranteed by the gross revenues of the Imperial Chinese Government.

Furthermore, in virtue of the authorization already granted by the Chinese Government, and in accord with it, the Imperial Chinese Railway Company declares that it makes a preferential assignment in favor of the payment of interest and of the capital of the present loan, and that it cedes and assigns in favor of said obligations all the net receipts of the line from Kai-feng Fu to Ho-nan Fu, after the regular payment of all expenses of management and operating, the whole as elsewhere indicated in an operating treaty concluded between the Imperial Chinese Railway Company and the Compagnie Générale de Chemins de Fer et de Tramways en Chine, said treaty being annexed to and forming an integral part of the present contract. This assignment is made exclusively and irrevocably until complete redemption of the bonds of the present contract.

Article 8.—After auditing and noting the net receipts the Imperial Chinese Railway Company shall direct the Compagnie Générale de Chemins de Fer et de Tramways en Chine to deposit these funds in a bank to be chosen by common consent. This bank shall convert into gold, in accordance with the provisions stipulated in the contract made between the Bank, the Imperial Chinese Railway Company, and the Compagnie Générale de Chemins de Fer et de Tramways en Chine, and to the best advantage of the Imperial Chinese Railway Company, the sums paid it, and up to the full amount needed to ensure the service of the loan at the next semi-annual payment.

These deposits shall continue to be made until the sum needed for the integral service of the loan on the following date of payment has been realized in gold, and in such manner that said service is ensured at least three months before the date of the semi-annual payment

The bank designated for the receipt of these sums shall use them to the best advantage of the Imperial Chinese Railway Company. The account in which these sums shall be carried shall be charged twenty days before the date of payment with the sums needed or the service of the loan, interest, amortisation, money expenses, difference of exchange, and the commissions provided for by the present contract.

Article 9.—The bank in which shall be deposited the loan funds shall have the right without further authorization to levy on said funds on deposit the amount of the coupons to be paid during the construction period; but it shall advise the Director-General as these payments are made.

Article 10.—To ensure the guarantee just given to the bonds of the present contract, the Imperial Chinese Railway Company grants these bonds a special first-class guarantee on the railway from Kai-feng Fu to Ho-nan Fu, on its fixed and rolling stock and its receipts.

The special assignment is accepted in the name of the bondholders by the Compagnie Générale de Chemins de Fer et de Tramways en Chine. In case of non-fulfilment of the obligations assumed by the Imperial Chinese Railway Company in the present contract, the Compagnie Générale de Chemins de Fer et de Tramways en Chine shall have full power to take such action against said property as may result from this special assignment, and in that case the provisions of the operating treaty hereto annexed must always be strictly observed.

Article 11.—The preceding provisions do not conflict with the personal responsibility of the Chinese Government concerning the present loan, as said responsibility is specified in Article 7.

Consequently the Imperial Chinese Government pledges itself to make up the sum necessary for the service of the loan in gold, in case the sums derived from the net revenues of the line from Kai-feng Fu to Ho-nan Fu, and paid in by the Compagnie Générale de Chemins de Fer et de Tramways en Chine, entrusted with this management by the Imperial Chinese Railway Company, to the bank chosen, should not produce after conversion into gold, and three months before the date of the following semi-annual payment, an amount sufficient to ensure said service.

In the case, and on demand made it, the Imperial Chinese Government shall be bound to put at the disposal of the Compagnie Générale de Chemins de Fer et de Tramways en Chine sixty days before the following semi-annual payment falls due, in gold or in securities of sufficient amount to produce it in gold, the sum stated to it as being needed to make up said service.

Article 12.—From the sums derived from the deposits by the Compagnie Générale de Chemins de Fer et de Tramways en Chine, entrusted with that duty by the Imperial Chinese Railway Company, or from the supplementary sums paid by the Chinese Government, the Compagnie Générale de Chemins de Fer et de Tramways en Chine shall, in proper season, place at the disposal of the firms entrusted with the management of the loan the amounts necessary therefor according to the needs as determined during the preceding half-year.

Article 13.—The Imperial Chinese Government will pay to the firm entrusted with the management of the loan a commission of ¼ per cent., that is to say 25 francs for 10,000 francs on the amount of the coupons paid, and a commission of ¼ per cent. on the amount of bonds drawn by lots or redeemed under anticipated refundings. The amount of this allowance shall be settled every six months; and, in case of insufficiency, it will be paid at once by the Imperial Chinese Government.

Article 14.—The Imperial Chinese Government binds itself to respect and cause to be respected the privilege provided for in favor of the bonds under Article 9 of the present conventions, and to hold free of all Chinese taxation whatsoever the bonds and coupons as well as all operations whatsoever connected with the management (service) of the loan. The preceding (provision) concerns the bonds and coupons of the loan and the operations relating to the management of the loan, and which shall be exempt from all taxation. But the taxes now in force in China, such as land rent and the taxes which the Chinese Government may impose hereafter, such as a stamp tax levied on the general commerce of China, the railway provided for in the present contract, and its traffic shall bear them. It being understood that no exceptional law shall be passed for the railway in question, and that the rule which shall be applied to it shall be that of all Chinese railways.

Article 15.—Coupons which have not been presented for cashing within five years after the date on which they fall due shall be lost by limitation (*prescrits*) in favor of the Imperial Chinese Government. The limit of time shall be of thirty years in case of redeemed bonds.

On the death of any bondholder of the present loan, the bonds shall be transferred and shall belong to the heirs, in conformity with the heritance laws in force in the country of the bondholder.

Payment of coupons and refunding of bonds shall take place in time of peace and in time of war to the holders, whether they be subjects of friendly states or of hostile ones. In case of loss, theft, or destruction of bonds of the present loan, the Imperial Chinese Government will authorize the Compagnie Générale de Chemins de Fer et de Tramways en Chine to replace the bonds by new ones at its own expense, whenever it shall have satisfactory evidence of the loss or destruction of the bonds and title-deeds (*des titres et des droits*) of the claimants.

Article 16.—The Imperial Chinese Government, through its representatives, shall at once take steps and shall furnish the necessary documents to secure the official listing (of the bonds) in the Bourses of the capitals of Europe.

Article 17.—The whole amount of the present loan, amounting to twenty-five millions of francs, represented by 500,000 bonds of 500 francs each, possession to be had from the date of payment, is bought outright (*pris ferme*) by the Compagnie Générale de Chemins de Fer et de Tramways en Chine, at the price of 90 per cent., that is for the sum of twenty-two millions five hundred thousand francs.

If on the date of issue the bonds for the loan for the Hankow-Peking Railway should be quoted below 482.50 francs inclusive of the interest payable (*en tenant compte de la jouissance*) the two contracting parties would have the right to cancel the present contract.

Article 18.—The Compagnie Générale de Chemins de Fer et de Tramway en Chine will deposit the full amount of the proceeds of this purchase in the banks designated by it after agreement with the Director-General of the Imperial Chinese Railway Company, on delivery of the 50,000 bonds bought outright (*achetées fermes*).

The sum needed for the building of a fixed length of line shall be transferred to Shanghai, and deposited in such bank as is mutually agreed upon.

This bank shall convert into taels the sum in accordance with the instructions of the Director-General of the Imperial Chinese Railway Company. A sum on the available proceeds of the loan, at least one-tenth of the proceeds of the conversion into taels, shall be deposited in a bank in China, to be chosen by the Director-General of the Imperial Chinese Railway Company, and under his sole responsibility, and this deposit shall be applied to expenses at such times as the rates for the conversion of European values into taels may be unfavorable. It being well understood that the depository establishments shall only be required to deliver these sums under the conditions and limitations mentioned in Article 20 here below.

Article 19.—The construction work for the whole of the line shall be under the direction of the Chief Engineer chosen by the Compagnie Générale de Chemins de Fer et de Tramways en Chine, entrusted with this work by the Imperial Chinese Railway Company and for its account.

The Chief Engineer shall prepare all studies, plans, tracings, estimates for the whole of the line; he shall direct the carrying out of all works and shall order the materials, tools, and supplies necessary to ensure the regular working of the line. Nevertheless all these operations must be submitted for the approval of the Director-General of the Imperial Chinese Railway Company.

As the line from Kai-feng Fu to Ho-nan Fu is a feeder (*confluent*) of the Luhan, the width of the rails and the general methods of operating must be the same as on the Luhan.

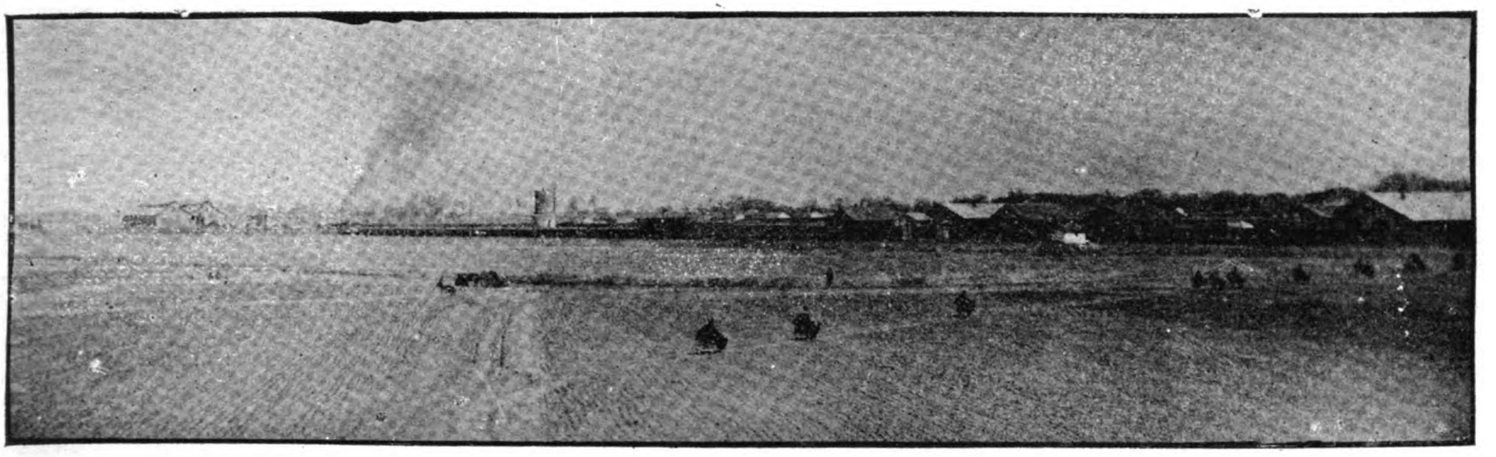
With the exception of the supplies of material and the expenses of all kinds duly authorized by an act signed by the Director-General of the Imperial Chinese Railway Company, and paid at Brussels, the Imperial Chinese Railway Company shall place at the disposal of the Compagnie Générale de Chemins de Fer et de Tramways en Chine, from the proceeds of the loan, the sums necessary to make, without any exceptions, all necessary payments for the carrying out of the works, the salaries of the staff under its orders, and in general for all expenses of whatsoever kind. But these payments must always be previously approved by the representatives of the Director-General.

After the signing of the present contract the Imperial Chinese Railway Company directs the Compagnie Générale de Chemins de Fer et de Tramways en Chine to choose an Engineer with experience in construction work, who shall direct the construction of the line and prepare studies, plans, tracings, and specifications for the whole line, and the whole shall

be submitted for the approval of the Director-General of the Imperial Chinese Railway Company. Said Chief Engineer shall be appointed, on recommendation of the Compagnie Générale de Chemins de Fer et de Tramways en Chine, by the Director-General of the Imperial Chinese Railway Company, to whom he is directly responsible.

Every month the Chief Engineer, in agreement with the Imperial Chinese Railway Company, shall request the bank in which are deposited the loan funds, to pay the amount necessary for the general expenses of the undertaking during the month following, to an agent chosen by the Director-General of the Imperial Chinese Railway, and against receipt

Article 21.—Within nine months following the date of the signing of the present contract, the Compagnie Générale de Chemins de Fer et de Tramways en Chine shall buy outright from the 50,000 bonds a first lot for 12,500,000 francs at the price of 90 per cent. for the purpose of building the first portion of the line. The balance of the issue, or 12,500,000 francs, for



PEKING-HANKOW'S CENTRAL SHOPS AND HEADQUARTERS AT CHANGSINTIEN

The Director-General of Chinese Railways shall fix the amount of his salary, after agreement with the Compagnie Générale de Chemins de Fer et de Tramways en Chine.

The Chief Engineer shall prepare a tabulated plan of the European staff necessary for the building, and shall submit it for the approval of the Director-General of the Imperial Chinese Railway Company. This staff shall be engaged by the Compagnie Générale de Chemins de Fer et de Tramways en Chine, which shall put it under the order of the Chief Engineer.

As regards the Chinese staff, whether technical or other, the Director-General of the Imperial Chinese Railway Company reserves to himself the right to choose it, and to put it under the orders of the Chief Engineer. No Chinese or European employee shall be engaged without the assent of the Director-General of the Imperial Chinese Railway Company. It is understood that Chinese subjects who have made special studies, or who have acquired sufficient practical knowledge, may be presented by the Director-General of the Imperial Chinese Railway Company to the Chief Engineer, who shall employ them on the works under the same conditions as European employees. As to the technical service, the Chinese staff as well as the European staff shall be under the direct orders of the Chief Engineer. But the Director-General reserves the right to demand the instant dismissal of any agent of whatever nationality on condition that the demand for dismissal is based on serious reasons.

The Director-General likewise reserves the right to depute on the works a special representative with full powers. The salary of said representative, as also the running expenses of the head office at Shanghai, shall devolve on the Kai-feng Fu to Ho-nan Fu railway concern.

Orders for materials, tools, and furniture for the construction of the line, and for its orderly working, shall be submitted through the Chief Engineer to the Director-General for approval.

Orders as well as contracts for work shall be drawn up, after mutual agreement, by the Chief Engineer and the representative of the Director-General.

Statements of the sums paid for supplies of materials and expenditures of every description settled in Europe shall be sent with all vouchers and explanatory documents to the Imperial Chinese Railway Company every three months.

duly signed by the latter and under the responsibility of the Director-General of the Imperial Chinese Railway Company. This agent shall not surrender any of the funds except under the signature of both the Chief Engineer and the representative of the Director-General.

The Compagnie Générale de Chemins de Fer et de Tramways en Chine shall not therefore be obliged to meet any expense for the building out of its own money.

Said Company shall endeavour to finish the work on the line within two years from the date on which the railway from Hankow to Peking shall be opened to traffic as far as the Yellow River, because materials will then be easily transported.

It is well understood that the Imperial Chinese Railway Company will not pay the expenses of the office in Brussels, except the necessary expenses for the studies, orders, receipt of materials, living of staff; consequently the personal expenses of the directors, allowances (indemnities), etc., will continue to be chargeable to the Compagnie Générale de Chemins de Fer et de Tramways en Chine.

Article 20.—The price paid for the above mentioned bonds being exclusively assigned to the building of the railway from Kai-feng Fu to Ho-nan Fu, the Compagnie Générale de Chemins de Fer et de Tramways en Chine, or the bank having received the deposits, would have the right not to give up these funds in case one of the deposits should not have been applied as provided for, and also in case the delegates of the Compagnie Générale de Chemins de Fer et de Tramways en Chine were not enabled by the Imperial Chinese Railway Company to continue the direction of the construction works.

The balance on hand, if any should exist after the completion of the works, shall be held subject to the order of the Imperial Chinese Railway Company. After the completion of the works and the organization of traffic, if the funds of the issue should still show a (credit) balance, said balance shall be paid in full to the Imperial Chinese Railway Company, who shall remit it to the Chinese Government.

If the loan provided for in the present contract should not be enough to finish the line or to organize traffic, the Compagnie Générale de Chemins de Fer et de Tramways en Chine is authorized by the present (contract) to make a further loan on the same terms as in the present contract without being obliged to make a new contract.

the building of the second section of the line, shall be taken at the same price and in one or two instalments by (public) subscription or otherwise. But it remains well understood that the expense of issuing the loan falls on the Compagnie Générale de Chemins de Fer et de Tramways en Chine.

If the Compagnie Générale de Chemins de Fer et de Tramways en Chine should begin simultaneously the building of both sections of the road on either side of the Luhan line, it shall have the right to make but one issue for the whole loan.

Article 22.—Preliminary studies of the line after the signing of the present contract are at the expense of the Imperial Chinese Railway Company, and are to be provided for out of the loan funds. Said studies of the line shall be provided for from the revenues derived from the loan, and they shall begin on the section running from Kai-feng Fu to the junction with the Hankow-Peking line. They shall afterwards be made over the other sections. From the Luhan junction to Ho-nan Fu will constitute the second section.

The proceeds from the first purchase of bonds shall be applied to the building of the portion of line from Kai-feng Fu to the Luhan junction.

The preliminary studies shall begin within nine months from the date of signing the present contract.

The Compagnie Générale de Chemins de Fer et de Tramways en Chine shall deposit one million francs to the order of the Imperial Chinese Railway Company. This sum is considered as an advance on the loan for the railway from Kai-feng Fu, to Ho-nan Fu and is to be specially devoted to expenses for study of the line.

The depository bank shall not surrender this sum except in accordance with the provisions of Article 20 of the present contract.

This advance shall produce an annual 6 per cent. interest without rate of issue, but it shall be refunded with the proceeds of the first sale of 12,500,000 francs, which must be issued within nine months from the signing of the present ontract; a portion of the proceeds of this sale will be issued to refund the advance first made.

Article 23.—Should the Compagnie Générale de Chemins de Fer et de Tramways en Chine finish satisfactorily the work for the railway from Kai-feng Fu to Ho-nan Fu, complying strictly with all the provisions of the present contract, and should the Chinese Government decide to extend the railway from Ho-nan Fu

interest on the bonds shall be at the rate of 5 per cent. per annum on their nominal value, payable half-yearly, on the first day of June and the first day of December, and shall be calculated from the date of their sale to the public.

The loan shall be issued to the public as soon as possible after signing this Agreement, but, if at the date of signature thereof, owing to an unfavorable state of the market rendering the issue of the loan and the payment of its proceeds to the Viceroy of Canton impossible on the terms above named, then in such case the Corporation shall thereafter, at such time as the Chinese Government may decide within a period not exceeding eight (8) months, issue the loan and pay the proceeds thereof to the Viceroy, deducting and retaining six (6) points from the rate at which the loan is actually issued to the public, whatever that rate may be (*i. e.* if the issue price be 101 the Viceroy will receive 95, and so on).

Subject to the provisions of Article 16, the duration of the loan is fixed at thirty (30) years commencing from the date of the signature of this Agreement, but no interest shall be paid on any bonds which may be redeemed or cancelled under the terms hereinafter mentioned after the redemption or cancellation thereof.

On the face of each of these bonds shall be expressed the value thereof in the sum of £100, or in such different amounts as the Chinese Minister in London, in consultation with the Corporation, may sanction.

It is understood that the Chinese Government may hereafter, in its discretion, appoint a Director-General of the Railway, upon whom, in such case, will devolve all the powers, functions and responsibility herein attributed to the Viceroy of Canton (hereinafter called the Viceroy).

Article 2.—The proceeds of the loan are to be used in the construction and equipment of the Railway, and in paying interest on the loan during the course of construction.

The Railway, being the first mortgage security for the loan, shall be built and equipped under the direction of the Viceroy, in accordance with the provisions of Article 6 hereinafter, and shall be built as economically as possible in accordance with the best modern system.

It is understood that the Viceroy will secure all the necessary land for the Railway, and will give the necessary instructions to expedite and facilitate the work of construction. The Railway will be built in the first instance as a single line, but provision will be made, with the approval of the Viceroy and wherever necessary to meet traffic requirements, for the eventual construction of a double line.

If, during the time of construction, the proceeds of the loan, together with the accrued interest thereon, payable by the Corporation, should, after the deduction of the sums necessary for the payments of interest on the loan, be insufficient to complete the construction of the Railway, the amount of the deficiency shall either be provided from the Chinese Government's own resources or by a supplementary loan to be hereafter issued by the Corporation, the interest and other conditions of which supplementary loan shall be arranged when the time arrives, having due regard to the conditions of the money market.

When the Railway is complete, if there is a surplus from the sale of bonds, the said surplus shall be at the disposal of the Chinese Government either to redeem the bonds in accordance with the terms of this Agreement, as hereinafter stated, or to be placed on deposit with the Hongkong and Shanghai Banking Corporation, for the purpose of paying interest on the loan, or for other purposes beneficial to the Railway, in regard to which the Viceroy will communicate in due course with the Corporation.

In all matters relating to the construction of the Railway it is expressly agreed that particular heed shall be paid to the opinions and habits of the Chinese people, and that, when practicable, Chinese shall be employed in positions of trust and responsibility in connection with the Railway.

In regard to earthwork, or such other work as Chinese are competent to perform, contracts shall be entered into for such work with Chinese, under the sanction of the Head Office, and the work itself shall be carried out in accordance with plans and specifications of the Engineer-in-Chief and under his supervision.

Detailed plans and estimates of cost, whether of the respective sections of the Railway, or of any alterations of the same, are to be submitted for the approval of the Viceroy, by the Engineer-in-Chief through the Managing Director.

Article 3.—The loan shall be secured by mortgage, declared to be now entered into in equity by virtue of this Agreement, and shall, as soon as possible hereafter, be secured by a specific and legal first mortgage in favor of the Corporation upon all lands, materials, rolling stock, buildings, property and premises, of every description purchased or to be purchased for the Railway, and on the Railway itself, as and when constructed, and on the revenue of all descriptions derivable therefrom.

The provisions of this Article in respect of the mortgage are to be construed and treated as equivalent in purport and effect to a mortgage, customarily executed and delivered in England to a Trustee, for the purpose of securing loans and bond issues upon Railway properties in foreign countries.

Article 4.—It is hereby agreed that in six (6) months after this Agreement is signed, the Corporation shall provide the amount necessary to proceed with the detailed survey of the Railway, and for preliminary construction work if necessary, whether this amount comes from the sale or hypothecation of the bonds, or from advances made, provided that bonds for the required amount shall have been executed and delivered to the Corporation. If, after expiration of eight (8) months from the date of ratification hereof, the work of construction shall not have been begun on the Railway, this Agreement is to become null and void, but if failure to commence construction be due to any cause of *force majeure*, a reasonable extension of this time-limit shall be arranged between the Viceroy and the Corporation.

Of the proceeds realized from the sale of the bonds, after deducting so much of them as may be required to be kept in England for the purchase of materials and the payments of contracts there, or for repayment of advances, such amounts as may be estimated and certified to by the Engineer-in-Chief to the Viceroy through the Managing Director, as being actually required for the construction of any particular section of the Railway, may be ordered by the Viceroy, after consideration, to be transferred to Hongkong to be kept in the Hongkong and Shanghai Bank, and place to the credit of the construction account of the Railway for the exclusive purpose of constructing the Railway in the manner herein provided for under the supervision of the Head Office and the Viceroy.

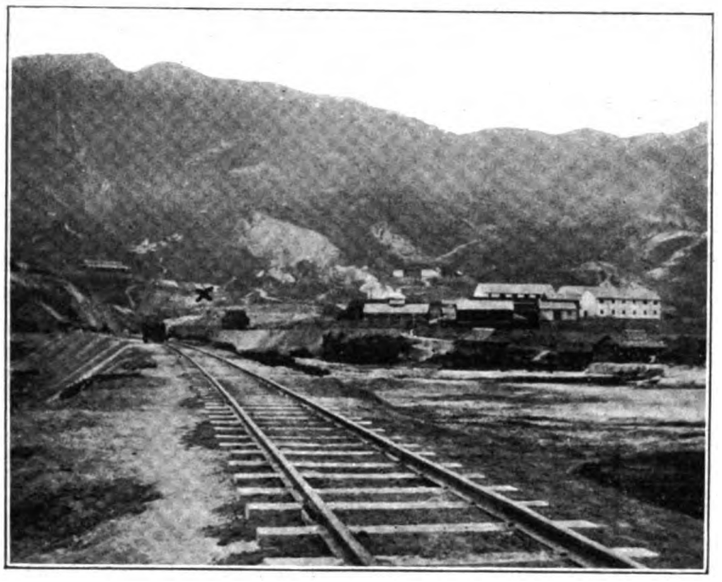
On each occasion of a remittance being made to China, the amount realized in Sycee will be reported to the Viceroy, and any portion which may not be required shall be placed at interest. Similarly, the balance in England shall be placed at interest, to be allowed at the usual rate.

The accounts of the money spent from time to time in England, and of the money transferred to the credit of the construction and other accounts for use in China, are to be submitted quarterly to the Head Office for report to the Viceroy, for the information of the Waiwupu, and for his further report to the Board of Revenue, and the Board of Communications, for record therein, after such accounts have been approved and signed by him.

Article 5.—As to the form of the bond, it is to be agreed upon by the Viceroy, or by the Chinese Minister in London and the Corporation, as soon as possible after the signature of this Agreement, but if, hereafter, the money markets in London or other countries require any modification of the form of the bond, except in anything that affects the amount of the loan and the liability of the Chinese Government, which are not to be touched at all, such slight modifications may be made to meet the views of the money markets by the Corporation in consultation with the Chinese Minister in London.

Any modifications are to be reported at once by the Corporation to the Viceroy for the approval of the Waiwupu.

The bonds are to be engraved entirely in the English language, and shall bear the facsimile of the signature of the Viceroy and of his seal of office, in order to dispense with the necessity of signing them all in person, but the Chinese Minister in London shall, previous



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VIEW OF KOWLOON END OF HONGKONG KOWLOON SECTION WITH WORKING PLANT

to Si-ngan Fu, the Director-General of the Imperial Chinese Railway Company agrees to come to an understanding preferably with, and to grant an option for the loan necessary for said undertaking to, the Compagnie Générale de Chemins de Fer et de Tramways en Chine in conformity with the provisions and conditions of the present contract.

Article 24.—The present contract shall only be binding on the Compagnie Générale de Chemins de Fer et de Tramways en Chine if it is assumed that, exclusive of what may be furnished and produced in China, and bought at the same prices as the European product delivered in China, the total amount of materials and supplies necessary for the building and operating of the railway from Kai-feng Fu to Ho-nan Fu will be asked of and ordered from the Compagnie Générale de Chemins de Fer et de Tramways en Chine, which will fill these orders under the best possible terms.

The carrying out of this provision of this contract by the Imperial Chinese Railway Company will be proven by the orders for materials for each of the sections of line undertaken.

Orders from the Compagnie Générale de Chemins de Fer et de Tramways en Chine will be free from all duties or from likin on importation or in transit across Chinese territory.

If proof of the granting of this franchise is not forthcoming before the end of the month following the date on which the Belgian Government should inform the Compagnie Générale de Chemins de Fer et de Tramways en Chine that it has received notification concerning Article 28, said Company reserves the right not to consider itself bound.

It reserves the same right if extraordinary events should take place, such as a war, or if there were absolute impossibility to secure subscribers for the bonds.

Should on its side the Compagnie Générale de Chemins de Fer et de Tramways en Chine not fulfil within the given delays the obligations it has assumed by the present contract, it shall become annulled. The Imperial Chinese Railway Company would be at liberty to enter into contract with whosoever it chose, and to give up the service of the Chief Engineer.

It is expressly agreed that the works and mines under the control of H. E. Sheng Kung Pao shall have a preferential right for all orders necessary for the building and operating of the railway which is the object of the present contract. The word preference applies to equality of specifications and prices, including transportation, as if the orders had to be filled abroad and delivered in China.

All orders made in China shall be free of duties and of likin on Chinese territory.

Article 25.—In case of disagreement between the Compagnie Générale de Chemins de Fer et de Tramways en Chine or its delegates and the Imperial Chinese Government or the Imperial Chinese Railway Company, such conflicts or disagreements shall be settled by the decision of a member of the Ministry of Foreign Affairs and the Minister of Belgium in China. In case of non-agreement the third arbitrator shall be the Dean of the Diplomatic Body at Peking.

Article 26.—Should the Minister of Belgium request the Chinese Minister of Foreign Affairs, the latter shall be bound to give cognisance of the title (*notifier le titre*) to the Minister of the foreign country mentioned to him as subscribing to the issue of bonds. The present contract is drawn up in triplicate, one copy for the Chinese Government, one for the Imperial Chinese Railway Company, and the third for the Compagnie Générale de Chemins de Fer et de Tramways en Chine.

In case of doubt or disagreement, the French text alone shall be authoritative in interpreting the present contract.

The present contract shall be submitted through the proper channel for the Imperial Sanction, and when that shall have been obtained, the Minister of Foreign Affairs shall notify, by official despatch, the Representative of Belgium at Peking, and in case of necessity, the Representative at Peking of the foreign country to whom the title shall be notified.

Article 28.—The Compagnie Générale de Chemins de Fer et de Tramways en Chine has been organized at Brussels the 26th March, 1900, under Belgian law (*régime belge*) and with Belgian capital.

The Imperial Chinese Railway Company only recognizes for the purposes of the present contract the above-mentioned contracting Belgian Company, which shall never have the right to transfer the present contract to other nations nor to persons of another nationality than Belgian.

Article 29.—The present contract includes the right to build little branch lines from the line from Kai-feng Fu to Ho-nan Fu for the purpose of securing traffic and establishing useful relations. These branch lines shall only be built after agreement with the Director-General and the Governor of Ho-nan and in accordance with plans approved by them.

AGREEMENT BETWEEN CHINA AND GERMANY IN REGARD TO THE RAILWAY AND MINING CONCESSION IN SHANTUNG.

I. The Chinese Government sanctions the construction by Germany of two lines of railway in Shantung. The first will run from Kiaochow and Tsinan-fu to the boundary of Shantung province via Wei-hsien, Tsinchow, Pashan, Tsechuen, and Suiping. The second line will connect Kiaochow with Chinchow whence an extension will be constructed to Tsinan through Laiwu-hsien. The construction of this extension shall not be begun until the first part of the line, the main line, is completed, in order to give the Chinese an opportunity of connecting this line in the most advantageous manner with their own railway system. What places the line from Tsinan-fu to the provincial boundary shall take in *en route* is to be determined hereafter.

II. In order to carry out the above-mentioned railway work a Chino-German Company shall be formed, with branches at whatever places may be necessary, and in this company both German and Chinese subjects shall be at liberty to invest money if they so choose, and appoint directors for the management of the undertaking.

III. All arrangements in connection with the works specified shall be determined by a future conference of German and Chinese representatives. The Chinese Government shall afford every facility and protection and extend every welcome to representatives of the German Railway Company operating in Chinese territory. Profits derived from the working of these railways shall be justly divided pro rata between the shareholders without regard to nationality. The object of constructing these lines is solely the development of commerce. In inaugurating a railway system in Shantung, Germany entertains no treacherous intention towards China, and undertakes not to unlawfully seize any land in the province.

IV. The Chinese Government shall allow German subjects to hold and develop mining property for a distance of thirty li from each side of these railways, and along the whole extent of the lines. The following places where mining operations may be carried on are particularly specified along the northern railway from Kiaochow to Tsinan, Weihsien, Pa-shan-hsien and various other points; and along the Southern Kiaochow-Tsinan-Chinchow line, Chinchow-fu, Laiwuhsien, etc. Chinese capital may be invested in these operations, and arrangements for carrying on the work shall hereafter be made by a joint conference of Chinese and German representatives. All German subjects engaged in such works in Chinese territory shall be properly protected and welcomed by the Chinese authorities, and all profits derived shall be fairly divided between Chinese and German shareholders according to the extent of the interest they hold in the undertakings. In trying to develop mining property in China, Germany is actuated by no treacherous motives against this country, but seeks alone to increase commerce and improve the relations between the two countries.

If at any time the Chinese should form schemes for the development of Shantung, for the execution of which it is necessary to obtain foreign capital, the Chinese Government, or whatever Chinese may be interested in such schemes, shall, in the first instance, apply to German capitalists. Application shall also be made to German manufacturers for the necessary machinery and materials before the manufacturers of any other Power are approached. Should German capitalists or manufacturers decline to take up the business, the Chinese shall then be at liberty to obtain money and materials from sources of other nationality than German.

This convention requires the sanction of His Majesty the Emperor of China and His Majesty the Emperor of Germany. When the sanction of His Majesty the Emperor of China reaches Berlin the Agreement approved by His Majesty the Emperor of Germany shall be handed to the Chinese Ambassador. When the final draft is agreed to by both parties four clean copies of it shall be made, two in Chinese and two in German, which shall be duly signed by the Chinese and German Minister at Berlin and Peking. Each Power shall retain one Chinese copy and one German copy, and the Agreement shall be faithfully observed on either side.

Dated the fourteenth day of the second moon of the twenty-fourth year of Kuang-Hsu (6th March, 1898.)

CANTON-KOWLOON RAILWAY.

AGREEMENT BETWEEN THE WAI-WU-PU (BOARD OF FOREIGN AFFAIRS OF THE CHINESE GOVERNMENT) AND THE BRITISH AND CHINESE CORPORATION LIMITED, FOR THE ISSUE AND REGULATION OF A LOAN FOR THE CONSTRUCTION OF A RAILWAY FROM THE CITY OF CANTON TO THE BOUNDARY OF THE KOWLOON LEASED TERRITORY UNDER BRITISH CONTROL (HEREINAFTER CALLED THE RAILWAY).

This Agreement is made at Peking on the 23rd day of the first month of the 33rd year of Kwang Hsu, corresponding to the 7th day of March 1907, and the contracting parties are:—

The Wai-Wu-Pu acting under the authority of an Imperial Decree, of the one part, and the British and Chinese Corporation Limited (hereinafter called the Corporation), of the other part.

Whereas a preliminary agreement was made on the 28th March, 1899, between H. E. Sheng, Director-General of the Imperial Chinese Railway Administration, acting under the authority of the Tsung-Li Yamen, of the one part, and the British firm of Jardine, Matheson & Company, for themselves and on behalf of the Hongkong and Shanghai Banking Corporation, representing as Joint Agents the Corporation, of the other part, and it was part of the objects thereof that the terms of another preliminary agreement signed by the same contracting parties on the 13th May, 1898, should be thereby adopted as a preliminary agreement for the construction and working of a Railway from the city of Canton to the boundary of the Kowloon leased territory under British control, subject, however, as far as might be practicable, to the terms and conditions thereafter agreed to in the final contract for the Shanghai-Nanking Railway when signed and ratified.

Now it is hereby agreed by and between the parties hereto as follows:—

Article 1.—The Corporation agrees to issue, on behalf of the Imperial Chinese Government, a sterling loan (hereinafter referred to as "the loan") for the amount of £1,500,000 on the terms and conditions hereinafter contained. Imperial Chinese Government bonds are to be issued for the entire amount, similar to the bonds of the Shanghai-Nanking Railway, with the Railway as first mortgage security therefor. The loan shall be in one issue and the price agreed upon is 94 per cent. of the nominal value, subject to the other provisions of this Article as hereinafter stated. The

to the issue of any Bonds, put his seal upon each bond with a facsimile of his signature, as a proof that the issue and sale of the bonds are duly authorized and binding upon the Chinese Government.

Such bonds are to be numbered consecutively; and as many bonds as may be needed are to be properly engraved under the supervision of the Corporation; and after they are sealed by the Chinese Minister in London, as hereintofore provided, are to be countersigned by the Corporation.

All expenses for the engraving, safe deposit, and sale of the bonds are to be borne by the Corporation.

Article 6.—When the work of construction is ready to begin, the Viceroy will establish a Head Office at Canton for the construction and management of the Railway. This Office will be under the direction of a Chinese Managing Director (appointed by the Viceroy) with whom will be associated a British Engineer-in-Chief, and a British Chief Accountant. These British employés shall be proposed and certified as competent for their posts, by the Corporation, and shall be approved by the Viceroy; if their services should prove unsatisfactory to the Viceroy, he shall request the Corporation to dispense with their services and to nominate their successors, and, in the event of the Corporation desiring to remove them for good cause, it shall do so in consultation with the Viceroy. It is understood that the duties performed by these employés are intended to promote the mutual interests of the Chinese Government and the bondholders respectively, and it is therefore agreed that all cases of difference arising therefrom shall be referred for amicable adjustment between the Viceroy and the Representative of the Corporation. The salaries and other terms of agreement of the Engineer-in-Chief and the Chief Accountant shall be proposed by the Corporation, for approval by the Viceroy; and the amount of their salaries, etc., shall be paid out of the general accounts of the Railway.

For all important technical appointments on the Railway Staff, Europeans of experience and ability shall be engaged, and wherever competent Chinese are available they shall also be employed. All such appointments shall be made, and their functions defined, by the Managing Director and the Engineer-in-Chief in consultation, and shall be submitted for the Viceroy's approval; similar procedure shall be followed in the case of Europeans employed in the Chief Accountant's department. In the event of the misconduct, or the incompetency of European employés, their services may be dispensed with by the Managing Director, after consultation with the Engineer-in-Chief, and subject to the sanction of the Viceroy. The form of agreements made with European employés shall conform to the usual practice.

The accounts of the receipts and the disbursements of the Railway's construction and operation shall be kept in Chinese and English in the Department of the Chief Accountant, whose duty it shall be to organize and supervise the same, and to report thereon for the information of the Viceroy through the Managing Director, and of the Corporation. All receipts, and payments, shall be certified by the Chief Accountant and authorized by the Managing Director.

For the general technical staff of the Railway the necessary arrangements shall be made by the Managing Director in consultation with the Engineer-in-Chief, and reported to the Viceroy in due course.

The duties of the Engineer-in-Chief shall consist in the efficient and economical construction and maintenance of the Railway, and the general supervision thereof in consultation with the Managing Director. He shall always give courteous consideration to the wishes and instructions of the Viceroy, whether conveyed directly or through the Managing Director, and shall always comply therewith, having at the same time due regard to the efficient construction and maintenance of the Railway.

A school for the education of Chinese in railway matters shall be established by the Managing Director, subject to the approval of the Viceroy.

Article 7.—Under the provisions of Article 3 of this Agreement the properties covered by the first mortgage security hereby created include the Railway, its property and equipment, and the mortgage is to be executed by a deed in the form contemplated by the said Article. But subject to the guarantee and mortgage thus given by the Chinese Government, it is hereby declared that this Railway is in fact a Chinese property.

All land that may be required along the whole course of the Railway within survey limits, and for the necessary sidings, stations, repairing shops and car sheds, to be provided for in accordance with the detailed plans now made, or hereafter to be made by the Engineer-in-Chief, and approved by the Viceroy, shall be acquired by the Viceroy at the actual cost of the land, and shall be paid for out of the proceeds of the loan.

The title deeds of the land for the Railway and all other lands shall be free from all encumbrances and entanglements, and shall, from time to time, as soon as secured, be registered in the name of the Railway.

Notices of all purchases of lands for the Railway within the survey limit (together with corresponding title deeds) are to be transmitted by the Railway Head Office under the direction of the Viceroy to the local Agent of the Corporation for record and preservation in its office in Hongkong, and for the purpose of establishing the first mortgage security until the time when the same are to be returned to the Viceroy, as hereinafter in this Article provided.

All lands, the title deeds of which are lodged with the Corporation as part of the first mortgage security of the loan, shall not be disposed of in any way by hire, lease, or sale, to any party, for any purpose whatsoever, without the written consent of the Viceroy, except only in the event of the Imperial Chinese Government failing to pay the interest or principal of the bonds, and then in accordance with the powers in the deed of mortgage.

The lands thus bought shall be free from all encumbrances, liabilities, and entanglements, and shall be conveyed by full and sufficient deeds of assignment according to Chinese law, all of which are to be kept and recorded in the Hongkong Office of the Corporation, and are to be held by it as a first mortgage security for the bonds under the provisions of this Agreement, until such time as principal and interest of the bonds, together with all indebtedness, shall have been paid off, when the same shall then be returned to the Viceroy, except only in the case of the Imperial Chinese Government's failure to pay the interest or principal of the bonds and consequent realization under the powers of the mortgage security.

For the proper protection of the first mortgage security the Chinese Government undertakes that until the bonds shall have been redeemed, no part of the lands comprised in the mortgage security or the Railway with its appurtenances shall be transferred or given to another party, or shall be injured, and that the rights of the first mortgage shall not be in any way impaired, unless with the consent in writing of the Corporation, which shall only be given if in the opinion of the Corporation the interests of the bondholders will not be affected.

And further, that until the interest and principal of the loan and all the indebtedness shall have been paid off, or unless with the express consent in writing of the Corporation, the Chinese Government or the Viceroy shall not again mortgage the above properties to another party whether Chinese or foreign.

During the period of this Agreement no special taxes shall be levied by the Chinese Government on the Railway, its appurtenances, or earnings: but all taxes at present payable, such as land tax, as well as any taxes which the Chinese Government may hereafter institute, such as stamp duty, etc., and which may be applicable generally to all commercial transactions in China, shall also apply in the case of the Railway and its operations.

Article 8.—It is agreed that if the half-yearly interest on the bonds is not paid on any due date thereof, or if the principal of the loan be not paid in accordance with the amortisation schedule hereto attached, the whole Railway with all its appurtenances herein mortgaged to the Corporation for the bondholders, shall be handed over to the Corporation to be dealt with by it according to law in such manner as will ensure the proper protection of the interests of the bondholders, provided, however, that if the failure to make payment at any one date be due to causes beyond the control of the Chinese Government, and if the Viceroy request the Corporation to postpone the taking over of the Railway for a reasonable period of grace, the question shall be amicably discussed and decided between the Viceroy and the Representative of the Corporation. When the whole loan and the interest due thereon and all the indebtedness shall have been paid off, the Railway with all its appurtenances in good working condition shall revert to the possession and management of the Chinese Government according to the provisions of this Agreement.

Article 9.—As remuneration for all services rendered by the Corporation, during construction of the Railway, the Corporation shall receive the sum of £35,000, half of which shall be paid when the construction work is half completed, but not later than eighteen (18) months after commencement of construction, and the other half upon completion of the line. This amount shall be regarded as a commutation of all commissions to which the Corporation and its Agents would properly be entitled, and of payments of all services rendered in the construction and equipment of the Railway, in respect of the present loan; but in the event of any branch lines being decided upon by the Chinese Government for construction in connection with this Railway, and if the Chinese Government, decide to build the same by issue of a foreign loan and not from its own resources, then the Corporation shall have the first option of tendering for such loan, and a further payment proportionate to the amount of such supplementary loan, and calculated at the same rate as the commutation hereinabove mentioned, shall be made to the Corporation as commutation of its commission for all services in respect of construction.

In return for this commuted commission, the Viceroy is entitled to require the Corporation to superintend the purchase of all materials required for the construction and equipment of the Railway, which shall be purchased in the open market at the lowest rate obtainable, it being understood that all such materials shall be of good and satisfactory quality. At equal rates and qualities, goods of British manufacture shall be given preference over other goods of foreign origin. Invoices and inspector's certificates are to be submitted to the Viceroy.

With a view to encouraging Chinese industries, Chinese Government and other materials are to be preferred, provided price and quality are suitable.

No commission shall be allowed to the Corporation on the purchase of materials except as above provided. All trade discounts or rebates, if any, are, during construction, to go to the construction account, and, after completion, to the credit of the Railway.

Article 10.—In the construction of the line, in the working of the Railway and in the performance of the different kinds of business connected with the Railway, no interference or obstruction by Chinese or foreigners will be permitted. The Chinese Government will provide protection for the Railway while under construction or when in operation, and all the properties of the Railway, as well as Chinese and foreigners employed thereon, are to enjoy the utmost protection from the local officials.

The Railway may maintain a force of Chinese police with Chinese officers, their wages and maintenance to be wholly defrayed as part of the cost of the construction and maintenance of the Railway. In the event of the Railway requiring further protection by the military forces of the Imperial or Provincial Governments, the same will be duly applied for by the Head Office and promptly afforded, it being understood that such military forces shall be maintained at the expense of the Government or the Province.

Article 11.—All receipts and earnings of the Railway shall be regularly paid into the Railway's account with the Hongkong and Shanghai Banking Corporation, and on such funds, whether on daily balance or on fixed deposit, the Bank's usual rate of interest shall be allowed.

All expenses of working and maintaining the line shall be paid from the receipts and earnings, and any remainder thereof shall be charged with the service of the loan. If, after payment of these expenses, and making due provision for payment of interest at 5 per cent. per annum on the bonds, and for repayments of principal due in accordance with the amortisation schedule hereto attached, there remain surplus funds unappropriated and properly available for other purposes, such funds shall be at the disposal of the Chinese Government to be used in such manner as the Viceroy may decide, provided always that after completion and opening of the line to traffic the amount sufficient for regular payments of interest and repayments of principal shall be deducted from such surplus funds, if any, and shall be deposited with the Hongkong and Shanghai Banking Corporation six months before the date at which such payments fall due.

In the event of there being no surplus funds available as aforesaid from the earnings of the Railway, the amount required for payments of interest and repayments of principal shall be provided in accordance with the conditions of Article 14 hereinafter.

Article 12.—The Corporation are hereby appointed Trustees for the bondholders, and in any future negotiations respecting these loans, or matters arising in connection therewith, which may take place between the Viceroy and the Corporation, the Corporation shall be taken as representing the bondholders, and as such empowered to act on their behalf. In view of the fact that the Corporation's responsibility to the bondholders continues after construction, whereas, as stated in Article 9, its commuted commission for services rendered is limited to the period of construction, and the Corporation is not thereunder entitled to any further remuneration during the period of the loan, the Corporation shall receive as remuneration for its services and responsibility in acting as Trustees for the bondholders the sum of £1,000 per annum, such remuneration to commence from the date of issue of this Loan and to terminate upon its complete redemption.

Article 13.—All materials of any kind that are required for the construction and working of the Railway, whether imported from abroad or from the provinces to the scene of the work, shall be exempted from likin so long as such exemption remains in force in respect of other Chinese Railways. The bonds of this loan, together with their coupons and the income of the Railway, shall be free from imposts of any kind by the Government of China.

Article 14.—It is agreed that during the time of the construction of the Railway, the interest on the bonds and on any advances made by the Corporation is to be paid from the proceeds of the loan. The accruing interest from any proceeds of the loan not used during the period of construction, and the earnings derived by the Chinese Government from the working of any sections of the Railway as they are built, are to be used to make up the amount required for the payment of the said interest, and if any deficiency remains it is to be met from the proceeds of the loan.

When the construction of the Railway is wholly completed, the interest on the bonds is to be paid, from the income or earnings of the Railway received by the Chinese Government, every half-year on the first day of June and the first day of December.

It is hereby agreed that the amount required for the payment of interest and the repayment of principal, together with a sum of one-quarter of one per cent. on such amounts, to cover commission to the Hongkong and Shanghai Banking Corporation, who are hereby appointed Agents for the entire service of repaying the loan, shall be paid to them fourteen (14) days before the due dates in Hongkong or in Canton (at the option of the Viceroy when settling exchange) in local currency sufficient to meet such payments in sterling in London, exchange for which shall be settled with the Hongkong and Shanghai Banking Corporation, the Viceroy having the option of settling exchange at any date or dates within six (6) months previous to any due date for the repayment of interest and principal.

The Chinese Government unconditionally undertakes, and hereby promises, to pay the principal of the loan and the interest on the loan on the due dates fixed therefor. If, at any time, the earnings of the Railway together with funds available from the proceeds of the loan, are not sufficient to meet the interest on the bonds and the repayment of capital in accordance with the amortisation schedule hereto attached, the Viceroy shall devise means for supplying the deficiency; and should his inability to do so appear probable, he shall memorialise the Government to take measures to make up the deficiency from other sources, and thus be ready to pay off the indebtedness, so that the required amount may be placed in each case at least fourteen days previous to the due dates of such payments in the hands of the Hongkong and Shanghai Banking Corporation.

Article 15.—The Corporation may, subject to all its obligations, transfer or delegate all or any of its rights, powers, and discretions to its successors or assigns, but the Corporation, which is a Corporation formed under English law, shall not transfer its rights under this Agreement to any other nation, or people of any other nationality, except British or Chinese. Similarly, the Chinese Government's rights and authority under this Agreement shall not be transferred to persons of other nationality.

It is further understood that the Chinese Government will not build another line competing with this Railway to its detriment.

Article 16.—The term of the loan, as stated in Article 1, shall be thirty (30) years. Repayment of principal shall commence after the expiry of 12½ years from the date of the loan and shall be completed in 17½ years by yearly payments to the Hongkong and Shanghai Banking Corporation as Agents for the service of the loan, acting for the Corporation under the terms of this Agreement, in accordance with the amortisation schedule hereto attached.

If at any time after the expiry of 12½ years from the date of the loan, the Imperial Chinese Government should wish to redeem the outstanding amount of the loan, or any portion of it, not yet due under the provisions of the amortisation schedule hereto attached, not less than six months' notice shall be given in writing by the Viceroy to the Representative of the Corporation, declaring the number of additional bonds so required to be redeemed, whereupon the Representative of the Corporation shall immediately proceed to make such arrangements as may be necessary and usual for the redemption of the number of bonds specified, which, when duly redeemed after payment by the Imperial Chinese Government of the proper amount due thereon, shall be cancelled and delivered to the Viceroy.

All bonds thus redeemed, in excess of the amount specified in the amortisation schedule hereto attached, before the expiry of 25 years from the date of the loan, shall be paid for with a premium of 2½ per cent. over their face value (*i. e.* £102, 10s. will be required to pay for £100), but, after 25 years, bonds may be redeemed over and above the amounts specified in the schedule without premium, upon notice being given in the manner above specified.

As soon as the loan has been completely redeemed, this Agreement shall become null and void and the mortgage shall be cancelled.

Article 17.—If, during construction, any proceeds of the sale of the bonds are lying unused and bearing interest on their deposit whilst the construction of the Railway is going on, such interest is to be credited to the general account of the Railway in order that the Railway may enjoy the full advantage thereof.

It is also agreed that, if the Corporation shall think it expedient before the sale of any of the bonds to advance any money for the work, such advances, together with the interest thereon, not exceeding a charge of 6 per cent. per annum, shall be deducted from the proceeds of the sale of the bonds.

Article 18.—The junction of the sections of the Railway from Canton to the boundary of the Kowloon leased territory under British control, and from the said boundary to the port of Kowloon respectively, and the subsequent joint working of the two sections, shall be arranged by agreement between the Viceroy of Canton and the Governor of Hongkong.

Article 19.—This Agreement is signed under the authority of an Imperial Edict dated ____, which has been officially communicated to the British Minister in Peking by the Wai-wu-pu.

Article 20.—This Agreement is executed in quintuplicate in English and Chinese, one copy to be retained by the Viceroy, one by the Wai-wu-pu, one by the Board of Communications, one by the British Minister, and one by the Corporation; and should any doubt arise as to the interpretation of the Agreement the English text shall be accepted as the standard

Signed at Peking by the contracting parties, this 23rd day of the first month of the 33rd year of the Emperor Kwang Hsu, being the 7th day of March, 1907.

Seal of Wai-wu-pu.
Signature of TANG SHAO-YI.

Witnessed by Canton Viceroy's Delegates, TAO-TAIS KUNG and HU.

For the British and Chinese Corporation,
J. O. P. BLAND.

Representative in China.

Witnessed by—

MESSRS. JARDINE, MATHESON & Co., and H. S. GARDNER, Agent, H. & Sh. Bkg. Corporation.

Joint Agents, B. & C. Corporation.

4. Upon the receipt of the Collector's repotr, the Agricultural Loans Commissioners may grant the loan.

5. No loan shall exceed fifty per cent. of the value of the security offered.

6. Ordinarily the security shall be a first mortgage on landed property. In exceptional cases, other forms of security may, with the Governor's consent, be accepted.

7. A loan of $100 shall ordinarily be repayable by twelve monthly payments of $8.84 or twenty-four monthly payments of $4.67 or thirty-six monthly payments of $3.28.

8. Except with the sanction of the Governor in Council, no single loan shall exceed $200.

9. An instalment of a loan shall be repayable without demand at the office of the Collector. In the event of an instalment remaining unpaid after the lapse of ten days from the due date of payment, a notice of demand shall be deemed to be duly served if sent by registered post to the address given by the borrower in his written application for the loan. The notice shall be in the form of the Third Schedule hereto, and there shall be payable in respect of it the sum of twenty-five cents which shall be recoverable as though it were part of the loan.

10. All accounts relating to loans under this Ordinance shall be audited by the Auditor-General, who shall, in January and July of each year, submit a report to the Governor in Council.

FIRST SCHEDULE.—FORM OF APPLICATION FOR A LOAN

To the Collector.

SIR:

$\frac{We}{I}$ have the honor to apply for a loan under the provisions and subject to the conditions of "The Agriculturists' Loans Ordinance 1908."

2. The amount $\frac{we}{I}$ wish to borrow is $

(say dollars) and $\frac{we}{I}$ intend, if the loan is granted, to apply the money to the purpose of

3. $\frac{We}{I}$ offer as security for the loan

4. $\frac{We}{I}$ offer interest at the rate of half per cent. per mensem and propose to repay the entire loan within years by monthly instalments of $

$\frac{We}{I}$ have the honor to be,
Sir,
Your most obedient servant,

.....

The rules adopted for the regulation of loans by the Philippine Agricultural Bank follow.

Requests for loans will not be considered, if not made upon the official blank.

Application blanks can be obtained from the Insular Treasurer or any provincial treasurer.

Applicants for loans must answer all questions in the printed application blanks clearly and fully.

The use to which the money is to be applied must be specifically stated, not in general terms.

Loans will be made solely and exclusively for agricultural purposes, namely:

1. For the payment or satisfaction of incumbrances on agricultural lands.

2. For the construction of drainage and irrigation works.

3. For the purchase of fertilizer, agricultural seeds, machinery, implements, and animals to be used exclusively by the borrower for agricultural purposes.

Loans will be made only.

(a) Upon the security of a first mortgage on unincumbered, improved urban property.

(b) Upon the security of a first mortgage on unincumbered agricultural land.

(c) Upon the security of a chattel mortgage to the Bank on crops already harvested, gathered, and stored.

Loans can not be made for less than ₱50.00 nor more than ₱25,000.00.

No loan will be made for more than forty per cent. of the value of the property offered as security.

No loan will be made by the Bank to any person or corporation not engaged in agricultural pursuits.

No loan will be made on property, the title of which is not in the mortgagor.

All buildings of strong materials, and stored crops covered by a mortgage must be insured for the benefit of the Bank.

All expenses of registration of a mortgage shall be paid by the borrower.

Loans can not be made for a period exceeding ten years.

The rate of interest on loans shall be ten per cent. per annum, payable at least once a year.

All applications for loans should be sent to The Agricultural Bank of the Philippine Government, Manila, P. I.

India has been greatly benefited by an extensive and popular system of co-operative land banks and credit societies. In three years these institutions have lent out $7 lakhs of Rupees and still retain 25 lakhs of assets. The agricultural credit societies have a capital of over ten lakhs over half of which has been subscribed by the members and upon which one half the balance has been borrowed from the outside and the balance advanced by the government. The success of these loans may be gathered from the fact that the report shows that not one debt had been written off and a handsome reserve is being built up. Not only is the farmer in India receiving financial aid at reasonable interest but he is managing to get out of the clutches of the usurer who heretofore held him in bondage. In fact, the agricultural banks and societies in India are saving the country by making it possible for the farmer to expend his energy by wise direction to its full limit in the development of the country's inexhaustible resources.

RAILWAYS IN CHINA

The FAR EASTERN REVIEW for September was practically devoted to a résumé of the history of railways in China to the exclusion of practically every other feature. The editor endeavored to cover the subject from the many years' accumulation of data available as accurately as such an exhaustive subject would permit in the limited space available. The many expressions of appreciation received, however, have been gratifying, and especially so in view of the fact that we realize how far we fell short of giving other than an epitome of a comprehensive presentation of this important subject.

The railroad will do more to reconstruct China along modern line than any other element of progress. Her undeveloped resources have not yet been realized by reason of their inaccessibleness so that the initiative of the new empire builders must have for its purpose the construction of lines of communication consistent with the geographical character of the country and its attractiveness in agricultural and other lines of production necessary to give satisfying returns on capital invested, and at the same time introduce the enterprise necessary to its development.

Capital has no nationality. It demands security and a proper return in the markets of the world for its investment. The development of the extensive railway systems of China shall be measured by the security accorded the capital ready for investment and the promise of returns in open competition with similar investment in other sections of the globe. This does not have special reference to foreign capital. It applies equally to Chinese capital. As we said before, capital has no nationality. It trembles at insecurity and demands the highest market quotation. The future development of this feature of China's reconstruction along new lines will be measured by the protection afforded, the encouragement given by the government and the people and the extent of co-operation in every department of activity accorded those who are endeavoring to bring the most inaccessible section of the country in touch with western enterprise.

MINING IN THE PHILIPPINES

A review of the progress made during the year in the development of the different mining properties indicates that those interests are greatly encouraged and that there is prospect of greater activity during the coming year. Few, not familiar with the prevailing conditions in the archipelago, may appreciate the remarkable manner in which the pioneer miners and prospectors have accomplished impossibilities and are slowly winning victory from apparent defeat.

The two mining organizations in Benguet have proceeded slowly but surely in their operations with the result that the future of the companies is bright. The Consolidated started with a three stamp mill and has not only doubled the capacity of the mill, but added an extensive cyanide plant of the most modern equipment. All this improvement has been paid for out of the proceeds of the mine. From the day the first car load of ore passed into the hopper the mine has paid its own way and supplied the funds to treble its original capacity.

The Bua Mining Company has demonstrated its faith in the district by installing a modern plant and while it has not been in operation for a lengthy period, the prospects for its future are bright.

In the Paracale district, seems to have been struck the bonanza of placer mining in the islands. In the résumé of the history of the district in another column will be found the most conservative figures on the output, carefully authenticated by the writer. That the average cubic yard of dirt dredged by the Paracale company produced $1.25 in gold spells 'bonanza' in large letters. Little, if any, placer ground in the world can show such a record on a six-month average. This report of the amount saved may serve to draw a smile from the incredulous, and indeed the management hesitated about giving out the information for that very reason. But the dredge is still working and there is no barbed wire fence around it to prevent the seeker after truth to authenticate the report. There is no stock for sale in any enterprise launched in Paracale so that the publication of the report is not in the interest of the company or its shareholders. It demonstrates, however, that the Philippine Islands are exceptionally rich in gold and that capital well directed by experience may find in the archipelago a most desirable avenue for investment in the development of its mineral wealth, the surface of which has not at this time been more than scratched.

It might be said in passing that the failures in mining projects in the Philippines must be laid to inexperience and unwise direction, and not to the lack of mineral wealth. Evidence of this may be found in Masbate. Thousands have been squandered uselessly through ignorance where wise and experienced direction would have won by this time the greatest possible returns from investment. Those who are trying at the present time to develop Masbate property and demonstrate that consistent and experienced direction is the only requirement to make enterprise pay there, are suffering from the mistakes of those who made the name of Masbate spell 'failure.' Those who have interests in Masbate, however, are not discouraged. They know that once the truth about the deposits of gold there seeps through, their most sanguine dreams shall be realized.

EDITOR DONALD HONORED

The FAR EASTERN REVIEW learns with gratification of the signal honor conferred on Mr. W. H. Donald, formerly editor of the Hongkong *Mail* and one of the most brilliant

To bonus	30,270	
Total		1,508,770
Amount to be carried forward to next account		307,024

IMPERIAL COMMERCIAL BANK.—The loss of 580,000 yen was the history of the last six months of this bank and at the meeting held in Tokyo last month it was decided to strike out the 580,000 loss and enter a profit of yen 100,000 in the statement of account and in order to adjust matters a new account called an adjustment account was opened and the yen 680,000 entered on the debit side. The statement of account then stood:

	Yen.
The net profit of the term under review	100,389.15
Forwarded from the last account	16,126.84
Total (which is carried forward to the next account.)	116,515.99

SHANTUNG RAILWAY CO.—The net profits for the year 1907 were £145,000, an increase over previous account of £12,000 out of which a dividend of 4.75%, an increase of .5% was declared. With the completion of the Tientsin Pukao Railway it is believed that there will be a marked extension in the coal trade.

GRAND HOTEL DES WAGONS LITS, LIMITED, PEKING.—This company has declared a dividend of 8.5% and carried forward Tls. 840 besides paying a small dividend on the founders' shares.

THE TANKO KAISHA.—This company has paid a dividend of 14% for the term ended June 30th.

TOKYO FARMERS' AND MECHANICS' BANK.—The following statement of accounts was approved and the recommendations adopted for the distribution of the net profits for the last six months:

	Yen
Gross receipt	104,380
Brought from last term	15,603
Total	119,983
Disbursement	59,615
Reserves against losses	10,000
Reserves for equalization of dividend	5,000
Reserves for the construction fund of new office	3,000
First dividend (5% per annum)	13,625
Bonus	1,600
Second dividend (5% per annum)	13,625
Carried to next account	13,518

TOKYO WOOLEN FACTORY, LIMITED.—The net profits for the half year were yen 43,275 including yen 3,152 brought forward and out of which a dividend of 8% per annum was paid and the balance of 2,275 carried forward.

OSAKA SHOSEN KAISHA.—A dividend of 6% per annum was declared for the last half year. At the meeting the chairman announced that arrangements have been concluded with the Chicago, Milwaukee and St. Paul Railway for opening a new Pacific service.

DAI NIPPON BREWERY.—The semi-annual meeting of this company was held last month and the following statement of accounts was approved and the recommendations adopted:

Profit during the term	506,038
Brought from last term	357,392
Total	863,430
Legal reserves	30,000
Bonus	25,301
Dividend (15% per annum)	420,000
Carried forward	388,129

OJI PAPER MILL CO.—At the semi-annual meeting held last month the following statement of accounts was approved and the recommendations for distribution adopted:

	Yen.
Net profit	116,117
Brought from last term	107,017
Total	223,134
Legal reserves	6,000
Special reserve	4,000
Dividend to shareholders (6 per cent. per annum)	108,000
Bonus	10,000
Carried forward	95,134

NIPPON RAILWAY CO.—At the general meeting of this company held last month a dividend of 12% per annum was declared.

NIPPON DAI ICHI BREWERY CO.—At the regular meeting held last month a dividend of 8% per annum was declared for the term.

DEUTSCH-ASIATISCHE BANK.—The net profits for the year were Shanghai Tls. 960,943 (Tls. 869,624 for 1907), out of which Tls. 83,948 (Tls. 75,024) are applied to reserve purposes, while Tls. 32,609 (Tls. 26,087) are paid as directors' fees, and Tls. 675,000 as a dividend of m.225 (m.200). The staff fund receives Tls. 50,000, as in the previous year, and Tls. 119,387 (Tls. 118,513) are carried to new account.

ORIENTAL SUGAR MANUFACTURING CO. (TOYO SEITO KAISHA).—The net profits of this company during the last half year amounted to yen 23,431 which was carried forward.

KANEGAFUCHI SPINNING CO.—The report for the half year shows a net profit of -Y-1,-026,876 including a surplus of -Y-750,402 brought over from the preceding period. Of this sum, -Y-628,340 was appropriated for a dividend at the rate of 16 per cent. per annum, -Y-100,000 was added to the reserves, -Y-50,000 paid as bonuses to officials, and -Y-748,536 carried forward.

THE BRUSEH HYDRAULIC TIN MINING CO., LIMITED.—Out of the net profit for the year $25,000 was placed in a special reserve, $60,000 absorbed in paying a 10% dividend and a balance of $3,843 carried forward.

HANDELSVEREENIGING AMSTERDAM.—The report for the year 1907 is to hand, and shows that although in one department, that of the agricultural estates, there was a working loss owing to a failure of the coffee crop, the balance of profit amounts to ƒ795,842. The Managing Directors propose to issue a sixth series of shares to the extent of ƒ1,250,000. The dividend is the same as that for five years past, namely 10 per cent. The historical statistics of the Company show that it began in 1879 with a capital of ƒ1,250,000, and made for the first year a profit of ƒ233,506. It has now a capital of ƒ6,250,000 and has made a total of net profits of ƒ1,486,169, carrying over for next year's account ƒ500,000. There is also a reserve of ƒ1,500,000.

CICELY RUBBER ESTATES COMPANY.—The net amount at the end of the year was £5,236 out of which a final dividend of 22.5% making 37.5% in all for the year on ordinary shares and 42.5% on preference shares.

SEVENTY-SIXTH BANK, YOKOHAMA.—The net income for the first half of the year was yen 83,189 and an interim dividend of 8% per annum was declared.

NIPPON UNION TRANSPORTATION CO., YOKOHAMA.—The net profit for the half-year ended May 31st was yen 25,819,111 out of which an interim dividend was declared at the rate of 10% per annum.

THE HONGKONG & SHANGHAI BANKING CORPORATION.—Minutes of the Ordinary Half-Yearly Meeting of the above-named Corporation held at the City Hall, Hongkong, at noon on 22nd August, 1908.—The Eighty-sixth Ordinary Half-Yearly General Meeting of the Shareholders of the Hongkong & Shanghai Banking Corporation was held on the 22nd instant, in the City Hall, when the eighty-sixth Report of the Court of Directors was submitted. Mr. E. Shellim (Chairman), presided, and there were present:—Hon. Mr. W. J. Gresson, Messrs. E. G. Barrett, C. G. R. Brodersen, G. Friesland, C. S. Gubbay, W. Helms, R. Shewan, Hon. Mr. H. A. W. Slade and Mr. H. E. Tomkins (Directors), Mr. J. R. M. Smith (Chief Manager), Messrs. C. E. Anton, A. V. Apear, J. Barton, J. F. Cox-Edwards, Wm. Dunbar, J. K. Grant, E. H. Hinds, Ho Fook, Henry Humphreys, R. R. Hynd, A. C. Hynes, H. C. Joass, Ellis Kadoorie, Lau Pun Chiu, Lo Cheung Shiu, J. M. E. Machado, E. F. Mackay, H. N. Mody, C. Pemberton, J. C. Peter, W. Hutton Potts, E. H. Ray, C. A. da Roza, Dr. J. H. Sanders, Mr. H. Percy Smith, Hon. Mr. Murray Stewart, Messrs. F. H. Thomas, A. F. Warrack, Wong Leung Him and others.

The Chief Manager read the notice convening the meeting.

The Chairman having read the Report already published said:—Gentlemen, I need hardly say that it gives the Directors great pleasure to present the 86th Ordinary Half-Yearly report which I have just read. The Statement of Assets and Liabilities now before you exhibits an active and increasing business and the Profit and Loss Account shows that we have had a satisfactory half-year.

I think I may count, with confidence, upon your approval of the proposed distribution, viz:—

a dividend of £2 per share to be paid,
$5 lacs to be added to the Silver Reserve Fund,
$2½ lacs to be written off Bank Premises Account,
the balance of about $20 lacs to be carried forward to the next half-year, or practically the amount brought in from the previous one.

In inviting you to compare the Statement of Assets and Liabilities with that of the 31st December last I have the satisfaction of being able to point to a growth in the figures under nearly every heading. On the one side we see the large increase of $300 lacs in Current Accounts and Fixed Deposits, gold and silver together, and this addition to our operative funds is represented on the other side of the account by a like increase in the total of Bills Receivable, Bills Discounted, Loans and Credits, Cash and Bullion in hand and in transit. The total assets of the Bank now amount to the large sum of 333 millions of dollars.

The high price of money in Europe referred to at the last meeting by my predecessor in the Chair is now a thing of the past and it has been succeeded by a period of financial ease and an accumulation of funds awaiting employment; this is accounted for to some extent by less money being required to finance our trade owing to the fall that has taken place in the price of most products, but is mainly due to a shrinkage of trade throughout the world. It therefore suited the Bank, towards the end of the half-year under review, to hold our bills in London until maturity instead of re-discounting them, and you will observe that the amount of bills re-discounted outstanding is considerably less than the figures shown in previous reports. Outstanding exchange purchases at the end of last half-year were based on the then high rates for money ruling in Europe, and our accounts benefited accordingly by the heavy fall in the rate of home discounts. Money is also abundant in the chief business centres in China, more especially in Shanghai where the stock of sycee is abnormally large. In Japan the Japanese Banks have for some time past adopted a conservative policy with regard to their advances and money there continues to command high rates. Several of the large manufacturing companies in the country have however lately been able to borrow money in Europe and America, and this financial help to Japan's productive enterprises cannot fail to have beneficial effects not only on the trade but also on the general finances of the country.

India is still suffering from the effects of bad crops and low prices but nevertheless a considerable amount of Bar Silver was imported by the Bazaar during the half-year. These conditions brought about a very weak exchange market, and to prevent any heavy fall in rates the Indian Government decided to offer weekly

FAR EASTERN ENGINEERING, CONSTRUCTION, COMMERCIAL AND FINANCIAL NEWS

ELECTRIC RAILWAYS, LIGHT, POWER, TELEGRAPHS, TELEPHONES, AIRSHIPS, ETC.

WAIPORA GENERATING PLANT.—This important hydro-electric plant in New Zealand suffered severely from floods which practically destroyed the flume that carried the water to the plant. The damage is estimated at about $90,000.

PAKLAT TRAMWAY.—A small tramway about one mile and one-fifth in length has been completed by the Menam Motor Boat Company to connect its service with the Siam Electric Co.'s Service. The line runs about three miles south of Bangkok.

OSHIMA HYDRO-ELECTRIC COMPANY.—The generating plant of this company has been put in operation and now the city of Hakodate is being supplied with light and power generated from the power plant at Onuma. This company has placed a loan of 400,000 yen with banks in Tokyo.

BANGKOK DOCK CO.'S ENTERPRISE.—The *Siam Observer* announces the construction by the Bangkok Dock Co. of the first dynamo turned out by any manufacturing plant in Central Asia and bodes well for engineering enterprise for Siam. This dynamo is driven by a gas engine.

FUJI ELECTRIC TRAMWAY.—Dr. Saburi, representing Tokyo capitalists, has been investigating the electrical invasion of the Alps with excursion trains, has reported that similar methods of transportation may be successfully inaugurated to climb the famous Fujiyama and the project will soon be under way.

TELEPHONE SERVICE FOR FUJIYAMA.—A telephone service is being installed and many stations established along the ascent to the mountain. According to the *Chamber of Commerce Journal* it is proposed to instal an electric lighting system as well and provide for artistic illumination of the mountain top at night.

PENANG ELECTRIC SUPPLY EXTENSION.—At a recent meeting of the municipal commission a loan of $100,000 was authorized for the duplicating of the plant so as to be prepared for emergencies, to extend the system and to replace defective cables. This action was based on the report of Acting Electrical Engineer Haslam.

KOSICHANG CABLE.—Alterations in the original survey for the laying of the cable has caused delay but this will soon be overcome with the arrival at Bangkok of the manager of the Eastern Extension Telegraph Co. who has the matter in charge. The linking of Kohsichang with Bangkok, says the *Bangkok Times*, will prove of great value alike to the government and the shipping community.

ADELAIDE TRAMWAYS.—The construction of the system under way has been greatly delayed by the slowness with which the necessary materials are being delivered. The agreement with the government provided that the system would be completed and ready for operation by the first of November but there is every reason to believe that the lines will not be ready for traffic by the end of the year.

ELECTRIC PLANT FOR ZAMBOANGA.—A stock company has been organized with a capital of 50,000 pesos fully subscribed for the purpose of installing an electric plant to supply light and power to the city. The company will also undertake to supply the city with water. The officers of the company are as follows: P. J. Moore, president; D. G. Beebe, vice-president; John Spirig, treasurer; Bernardo Macrohon, secretary.

CHINESE TELEGRAPHS.—A compromise has been effected between the shareholders of the Imperial Chinese Telegraph Administration at Shanghai and the Ministry of Posts and Communications, the former having agreed to accept $180 each for their shares instead of $170 as originally offered. As a result of the negotiations there is prospect of an early control of the telegraphs of the empire by the government and the installation of the extensive lines contemplated to make the system most effective.

ALBAY AND CAMARINES TELEGRAPH AND TELEPHONE FRANCHISE.—The Philippine Government has granted a franchise to Charles W. Carson to install a system of communication in the provinces referred to. Another and similar franchise has been proposed for the island of Panay. These systems include the right to install systems not only in any of the municipalities but connecting them as well. This system will, when completed, provide long distance telephone connection throughout the principal provinces and ultimately place all municipalities in communication with the insular capital.

KEIHIN ELECTRIC RAILWAY.—This company has concluded a British loan for 2,000,000 yen to be utilized in constructing an extension between Shinagawa and Aoyama, a distance of over four miles, together with a two mile coast line connecting Kamata and Haneda and the doubling of the Kamata-Haneda line for a distance of about two miles. The company is also considering the advisability of double-decking the cars so as to increase the carrying capacity of the system. The present capacity is 50,000 a day and it is believed that the traffic may be doubled by the innovation. In addition to the electric trams it is the purpose of the company to supply light and power to the different localities along the Shinagawa and Kanagawa line.

SINGAPORE ELECTRIC TRAMWAYS.—The *Singapore Free Press* takes occasion to explain an advertisement in the Government Gazette referring to the liquidation of the Singapore Tramways Limited and says:

"A notice appears in the last issue of the Government Gazette, advertising the liquidation of the Singapore Tramways Limited, which might be misleading without a line of explanation.

"The liquidating Company must not be mistaken for the Singapore *Electric* Tramways Limited which is the Company that now owns and operates the Tramways of Singapore.

"The present Company purchased its rights and undertaking from the Singapore Tramways Limited, and hence the liquidation now of the latter as a formality."

SYDNEY TRAMWAYS.—The new turbine generator for the Ultimo power house at Sydney will not be installed until September next owing to delays in England occasioned by the engineers' strike. As a result, says the *Australian Hardware Journal*, it is impossible to supply any additional current, and all the new tram lines will have to wait. Continuing, that journal says:

"Few have any adequate idea of the enormous extension of tramways around the city during the past half-year, and still going on in all directions. Some important extensions are being made in the vicinity of the garbage destructor at Moore Park. A new car shed and handsome offices have been erected, costing close on £30,000, which have vastly improved that locality, and but for the unsightly tip and the destructor would become a desirable place for residences."

JAPANESE WIRELESS TELEGRAPH TOLLS.—The Japanese department of communications has issued the following schedule of tolls for wireless service:

Coast fee—
For messages to be received in or despatched from Japan, through coast offices:
60 *sen*, not exceeding five words.
12 *sen* per additional word.
For other messages:
24 *sen* per word.
Fee on board—
16 *sen* per word.

In addition to the aforesaid coast and vessel fees ordinary telegraph fees must be paid at the following rate:—
For messages to be received in or dispatched from the main land:
25 *sen*, not exceeding five words.
5 *sen* per additional word.
For messages to be received in or dispatched from Formosa, Shanghai and the Bonin Islands:
Official messages—
25 *sen*, not exceeding five words.
5 *sen* per additional word.
Private messages—
50 *sen*, not exceeding five words.
10 *sen* per additional word.

RAILWAYS AND RAILWAY SUPPLIES

NANKING CITY RAILWAY.—This line was opened to traffic the last week in August.

SHANTUNG RAILWAY.—The total revenue for the term ended June 30th is announced to be $1,200,000.

YOKOHAMA RAILWAY.—The extension between Kanagawa and Hachioji was opened the last of August.

PEKING AND MUKDEN TRAFFIC.—Railway traffic between these two points was opened on September first.

MANILA RAILWAY CO.—The new line from Manila to Batangas was opened to traffic last month as far as Biñan.

FORMOSAN RAILWAY HOTEL.—The railway hotel at Taikohu is about completed and will prove a boon to that section.

MUKDEN RAILWAY DEPOT.—The new building constructed by the Imperial Railways of North China was opened last month.

PEKING-KALGAN CONSTRUCTION.—The recent floods destroyed much of the track near Nankou but this has been promptly repaired.

TEHCHOW ARSENAL BRANCH.—The officials of this institution have petitioned for a branch to connect the works with the Tientsin-Pukow.

KIACHOW-TSINANFU RAILWAY.—The German government has agreed to sell back the railway to the Chinese government for Tls. 15,000,000.

RAILWAY BRIDGES FOR TIENTSIN-PUKOW.—Eight large bridges have been ordered for the northern section from the Hanyang Iron and Steel Works.

INDIAN RAILWAYS.—The total mileage of railways under operation in India March 31st, 1908, was 30,286 with 2,457 miles undergoing construction.

TOKAIDO RAILWAY.—The doubling of this line is being expedited by the Railway Department and the new station at Ashiya was opened September 1st.

CANTON-HANKOW.—Advices from Yingtak state that in view of the effect of the recent floods, it has been decided to change the road bed in a few instances.

BRIDGE WORK ON THE TIENTSIN-PUKOW RAILWAY.—The Yangtze Engine Works have the contract for the construction of the bridges on the Northern Division.

THE BOSO RAILWAY.—The purchase price of this line has been fixed at 2,156,000 yen and the Japanese Government will confer on the company 960,000 in bonds.

ANTUNG-MUKDEN RAILWAY.—Liaoyang may not have the benefit of this line if changes proposed in the route are confirmed. Kwantienshien may be substituted.

JAPANESE ENTERPRISE IN MANCHURIA.—The profit from the railway section south of Harbin controlled and operated by the Japanese has exceeded yen 4,000,000 per annum.

SUNGEI UJONG RAILWAY CO. TRANSFER.—The property operated by this company passed into the hands of the Federated State Railways August 1st. The old staff, generally, was retained.

NORTHERN MANCHURIAN RAILWAY.—The Peking government has sanctioned the construction of line connecting Tsitsihar and Aigun, a distance of 240 miles, to be completed in four years.

TRANS-FORMOSAN RAILWAY.—The ceremony in connection with the opening of this line will be held in October at Taichu and will be presided over by a prince of the Imperial family of Japan.

PEKING-HANKOW RAILWAY.—The result of the disastrous floods along this line has been repaired and traffic resumed August 20th between Peking and Hankow where the damage was greatest.

YELLOW RIVER RAILWAY BRIDGE.—It has been decided to span the river along the line of the Tientsin-Pukow Railway with a steel structure at Lokow, opposite Chinanfu, the capital of Shantung.

HSINMINTUN FENGTIEN RAILWAY.—The redemption of this line by the government has been recommended to the throne by the board of Posts and Communications at Peking. The price named is Tls. 3,400,000.

TIENTSIN BRANCH STATION.—The site for a branch station to be erected in Tientsin in connection with the Tientsin-Pukow Railway for the convenience of the commercial community is now the subject of discussion.

AMOY-CHIANG CHU RAILWAY.—With the completion of this line it is anticipated that every effort will be made to extend it so as to connect with the Peking Hankow where connections would be made between Amoy and Paris.

CHANGCHUN-KIRIN RAILWAY.—An effort is being made by the influential Chinese capitalists of Kirin to secure control of this line and at a recent meeting of those interested the sum of Tls. 2,000,000 was subscribed for this purpose.

DAI NIPPON KIDO KAISHA.—This company was recently launched with a capital of yen 2,335,000 an amalgamation of the eight light railways in Fukushima, Atami, Shizuoka, Ise, Kumamoto, Hamamatsu, Hiroshima and Yamaguchi.

INDIAN RAILWAY CONFERENCE ASSOCIATION.—This association convened at Simla September 21st for the purpose of discussing among other things the municipal taxation of railways, electric lighting for trains and question of tariff simplification.

STEEL RAILS FOR AUSTRALIA.—The relaying of the lines controlled and operated by the New South Wales Government is going on apace. A recent shipment received comprising 12,273 steel rails and a large quantity of fishplates is for this purpose.

MILITARY RAILWAY BRANCHES.—The Peking government is considering the advisability of constructing branches from the different main lines throughout the empire so as to make connections with the different naval stations and military depots for strategic purposes.

CANTON-HANKOW RAILWAY.—The construction work from Wuchang for 148 miles will be under the supervision of Engineer G. Moore who is also Engineer-in-Chief of the Hankow Waterworks. The first sod will be turned in October and there is every prospect of rapid progress.

KOWLOON-CANTON RAILWAY.—The desire of the Peking government to appoint an advisor to the British Syndicate in charge of this section is not welcomed by the British company and the president of the Board of Posts and Communications has filed a protest through the Chinese minister to London.

RUSSO-JAPANESE RAILWAY CONFERENCE.—This conference will be convened at St. Petersburg in October for the purpose of discussing the establishment of a junction between the South Manchurian and the Chinese Eastern Railway and, in addition, junctions and working agreements with Chinese lines.

TUNNELING IN SIAM.—The Royal Railway Department of Siam has undertaken to run tunnels through the watershed between Menam Yom and Menam Yai. One tunnel at Kao Pung when completed will be 400 meters in length and the other 100 meters. The work is progressing favorably, says the *Bangkok Times*.

CANTON-MACAO RAILWAY.—The Chinese Director, who made a contract with the Portuguese company for the construction of this line, has petitioned Peking to cancel the contract for the reason that the company has needlessly delayed construction. He also urges that the government should press the construction of this important line with all vigor.

CENTRAL WESTERN RAILWAY EXTENSION.—The new line connecting Nakatsu and Sakashita, a distance of six miles, was opened on August 1st. This line passes through difficult country and the construction of a steel bridge over the Kiso River, a very turbulent stream, is evidence of unusual engineering enterprise. This line taps a district rich in granite deposits.

CANTON-HANKOW LOAN.—Director General Chang Chih-Tung of the proposed Canton-Hankow trunk line is opening negotiations for a loan of Tls. 50,000,000 necessary for the construction of this line through Hunan and Hupeh. The funds for the line in Southern and Central China will be provided by a British loan. The Cantonese are expected to defray the expenses of a part of the line in Hunan.

NEW AUSTRALIAN RAILWAYS.—The announcement is made that the construction of the South Grafton to Coff's Harbor section of the North Coast Railway in New South Wales would commence about the first of the year, and that an additional extension will be made from Coff's Harbor to Dorrigo. To relieve the congestion of traffic on the Western Suburban line it is proposed to extend the line from Belmore to Liverpool.

YUNNAN RAILWAY.—Advices from Yunnan announce the collapse of the concessionaire company after completing the construction of 92 kilometers of line and expending 10,000,000 francs. The suspension of the work is blamed on the unsettled condition of the country which made it impossible to secure the necessary labor. The first 71 kilometers of the Laokai Yunnanfu was taken over from the construction company recently.

TAI-TSAO RAILWAY.—The construction of the projected line of railway to connect the coal mines near Yihsien with Tiehchwang in South Shantung will add great impetus to the colliery industry in the section affected. The mine owners propose making modern installations and improvements that will greatly expedite the work at the mines and reduce the cost of production to the minimum, once transportation facilities are afforded.

HANCHOW-KASHING RAILWAY.—A trial run was made on the Linping-Siashih section of the Northern end of this line about the middle of August and the line between Siashih and Kashing will be completed as soon as the bridge, now under construction, is finished. It was expected that by the middle of this month trains would be running into Kashing. The construction between Kashing and Kashan was commenced this month.

PAKHOI-NANNING RAILWAY.—The survey of a line connecting Pakhoi in Kuangtung to Nanning situated in Kuangsi has been ordered by the department of Posts and Communications and the viceroy of Canton has the matter under his charge. This is the line proposed and abandoned last year but now found necessary for the transportation of troops and military supplies in connection with the uprisings that feature those Southern provinces.

BURMO-CHINESE RAILWAY.—The Indian Railway Board is considering the construction of a railway to connect Bhamo and Talifu by way of Tengyueh, a distance of 385 miles. This would place Western China in direct communication with India and the traffic, which is now carried during the more favorable seasons by pack-trains, indicates that the project would prove a satisfactory investment. This line would cost about £5,000,000.

TIENTSIN-PUKOW CONSTRUCTION.—The German or Northern division of this line is to be divided into four sections for the purpose of expediting the construction, as follows: Tientsin to Liangwongchuang; Liangwongchuang to Sungchiatun; Shungchiatun to Tungkuangshien and Tungkuangshien to Tungpinghsien. The director general of the entire railway is the Hon. Lu Hai-huan and managing director of the British section is Taotai K. S. Low.

AMERICAN ENTERPRISE IN SIBERIA.—Professor Oseroff who occupies the chair of Political Economy in the Moscow University is quoted by the Russian Press. "The granting of concessions to the financiers of America must be made under the one condition, that all the work must be carried out with Russian labor and Russian material. I would like to see concessions given to Americans so that the American spirit of energy and work may take the lead and become a blessing to the people of Siberia."

RANGOON RAILWAY STATION.—The plans for the extension of the Rangoon railway station are complete and the work on the remodelling of the yard is underway. The increased facilities necessary for the handling of traffic at this point has been apparent for some time, The additions of the traffic from the lines in the Irrawaddy Delta and the line to Mandalay which Rangoon now handles in addition to the original Rangoon-Prome line, have caused serious congestion and inconvenience which the remodelling will eliminate. The cost will not exceed twenty lakhs of rupees.

LOCOMOTIVES FOR PEKING-KALGAN LINE.—The North British Locomotive Company, Limited, of Glasgow has shipped three heavy articulated compound engines for this railway. They are equipped with the Westinghouse automatic brake and are designed for use on heavy grades. They are described as follows:

Gauge, 4 ft. 8½ in.; diameter of high pressure cylinders, 18 in.; diameter of low-pressure cylinders, 28½ in.; stroke of pistons, 28 in.; diameter of coupled wheels, 4 ft. 3 in.; rigid wheel base, 9 ft. 8 in.; total wheel base 29 ft. 4 in.; height of boiler centre, 10 ft.; heating surface total 2,591 square feet; grate area, 45.1 square feet; working pressure, 200 lbs. per square in.; weight in working order, 96.

SOUTH AUSTRALIAN RAILWAYS.—Tenders will be opened on October 21 for the following railway material delivered on the dock at Port Adelaide—72 best mild steel boiler plates, 16 best mild steel smokebox tube plates, 5 copper tube plates (flanged), 16 copper wrapping plates 5 best steel crank axles, 50 carriage rugs, 12 cast steel tramcar wheels, 317 engine and tender tires, 302 bars channel steel, 245 bars angle steel, 603 mild steel plates, 10 bars square root angle steel, 580 spiral springs, 15 bars best mild steel angles, 600 mild steel sheets for panel plates. Specifications may be seen and forms of tender obtained at the Supply and Tender Board Office, and the Office of the Chief Mechanical Engineer, Islington; specifications may also be seen at the Office of the Agent-General for South Australia in London.

PUBLIC WORKS, DOCKS, WHARVES, ETC.

CANTON WATERWORKS.—The construction of the extensive system of water supply for Canton is now under way. The first sod was turned on August 16th.

CHINA'S SOUTHERN NAVAL BASE.—With the approval of Peking the Island of Nantien will be made the naval base and large docks will be constructed at an early date.

TAIHOKU WATERWORKS.—The development of a water supply system has cost the city over one million dollars during the past three years and is now nearing completion.

FATSHAN WATERWORKS.—The petition of Mr. Pan Yuen Ho for a concession to install a water supply system at Fatshan has been granted by the viceroy. He will also install an electric light plant.

PEKING WATERWORKS CONSTRUCTION.—The work on this system is now under way. The contractors have divided the construction into two sections and both are being developed simultaneously.

YOKOHAMA WATERWORKS.—The extension of the water supply at an outlay of 7,000,000 yen, the construction of which will take 10 years has been decided upon and the financial features are now being arranged.

FOOCHOW DOCKYARDS.—A new site is proposed for these docks and new buildings with the most modern equipment will be installed. The central government has authorized the dispatch of a delegation to foreign countries to investigate methods and equipment.

HOANGHO CONSERVANCY.—During the last year over Tls. 150,000 have been spent in the maintenance of the dyke repairs and in constructing new dykes, says the *Peking and Tientsin Times*. The new dykes comprise a distance of 12,000 feet in length on either side of the river between Tsiyang and Putahsien.

NEW ZEALAND PUBLIC WORKS.—The government has authorised a loan of £1,250,000 to be expended together with £1,100,000 from other sources as follows: Railways, £1,000,000; additions to open lines, £350,000; roads and bridges, £650,000; public buildings and telegraph and telephone extensions, £350,000.

CHIKUGO IRRIGATION.—The Fukuoka-ken authorities are considering a scheme for the irrigation of the rice lands in Chikugo. The scheme includes the construction of a canal 35 miles in length and the utilization of the waters of the Chikugo River. This equipment will, it is believed, provide sufficient water to irrigate 33,000 acres.

BENGUET ROAD BRIDGES.—The Atlantic Gulf and Pacific Co. of Manila has secured the contract for the construction of three reinforced concrete bridges and five steel spans on the Benguet Road to replace the temporary suspension structures. The concrete arch structures will have 70, 75 and 23 meters respectively and the largest steel span will be 79 meters.

ONOHAMA RECLAMATION SCHEME.—The Mitsui Company proposes to expend the sum of 10,000,000 yen in reclamation at Onohama for the purpose of extending its warehouse accommodation in connection with the increased harbor facilities at Kobe and the prospect for increased business. Some delay has been experienced in securing permission of the Kobe authorities.

KEELUNG HARBOR WORKS.—The progress of the harbor improvement works at this Formosan port has been marked, and by the end of the year the quays in the vicinity of the railway station will accommodate vessels of medium tonnage to anchor alongside. These quays will be 1,500 feet in length and there will be an uniform depth of 30 feet alongside when complete.

SIBERIAN WATERWAYS AND IMPROVEMENTS.—A project which has for its purpose the construction of large canals for the purpose of connecting the rivers Tobol, Ob, Ishim, Irlish, and Yeniessi, has been authorized by the Russian government and a survey is now under way. This system of canals and natural waterways will approximately parallel the Trans-Siberian Railway.

WATER SUPPLY FOR RUBBER ESTATES.—The necessity of pure water for the rubber estates of Malaya is engaging the attention of the leading rubber companies. The *Singapore Free Press* announces that the Chenderiang and Sungei Yong Rubber companies have arranged to tap the Chenderiang and Tapah water mains for the purpose of supplying pure water to their estates.

YOKOHAMA BUND RECLAMATION.—The city assembly recently appropriated the sum of yen 27,650 for the purpose of reclaiming a portion of the foreshore in order to widen the road between the French Hatoba and the Grand Hotel. The reclamation of this strip will be 11 yards wide by 266 feet in length. This work is an extension of the plans of the electric railway company along the foreshore to Sugita.

HANKOW PUBLIC IMPROVEMENTS.—The construction of municipal buildings in the Russian, German, and British concessions is an indication of the general activity in the building line that characterized recent history in this city. The different concessions are well lighted with electric light and with the transfer of the old British Municipal building to the customs makes the latter more available to the commercial community.

LIAO RIVER IMPROVEMENTS.—The merchants o Newchwang are agitating the improvement of the river so that it may be kept open for the junk carrying trade. It is advanced that the facilities offered by the river for the transportation of supplies and Manchurian products cannot be equalled by any railway that may be built from Tiehling to the sea. A free and open channel from Tiehling would mean much to the development of the resources of Manchuria.

HONOLULU HARBOR WORKS.—The construction of an entrance channel to the harbor 35 feet deep and 400 feet deep and easing of a curve which menaces shipping is well advanced. The dredging of the harbor proper will provide shelter of an uniform depth of 35 feet and width of 1,200 feet at mean low water. The plans for the naval station at Pearl Harbor, eight miles west, provides for a waterway 37 feet in depth and at no point in which there shall be a curve of less than 2,000 feet radius.

MONGKOKTSUI TYPHOON SHELTER.—The legislative council of Hongkong has authorized the expenditure of $1,500.000 for the construction of a large harbor of refuge and to meet a portion of the cost the following increase of harbor dues was authorized:

(1) For all river steamers, which enter the waters of the Colony by day or by night:—

Five-sixths of a cent per ton register.

(2) All other ships which enter the waters of the Colony:—

Two cents per ton register.

Exemptions.—British and foreign ships of war.

MORO PROVINCE IMPROVEMENTS.—The sum of ₱94,050 has been authorized expended for buildings at Mindanao as follows:

District building, District of Lanao, fifteen thousand pesos; district building, Cotabato, twelve thousand pesos; custom house and bodega at Davao, three thousand five hundred pesos; pump-house at provincial building, one thousand pesos; district jail at Jolo, ten thousand pesos; garage at Zamboanga two hundred and fifty pesos; headquarters, sub-district of Basilan, five thousand pesos; Moro Exchange buildings, twelve thousand five hundred pesos; buildings at Calarian, three thousand three hundred pesos; school buildings, thirty-one thousand five hundred pesos.

For bridges and roads the sum of ₱65,100 will be expended.

SHIPBUILDING, GENERAL MARINE AND FISHERIES

GUNBOATS FOR THE AMUR.—The shipyard at Storetinsk on the Amur has been given the contract for the construction of three vessels which will be used for patrolling purposes.

TO SUPPLY BATTLESHIPS.—Messrs. Arnhold, Karberg & Co. have secured the contract for the supply of fittings, decorations and other supplies for the battleship fleet during its visit to Amoy.

SINGAPORE MARINE REPORT.—During the year 1907, 10,647 vessels with an aggregate tonnage of 14,295,028, called at this port, a decrease of 346 vessels and 173,260 tonnage compared with the previous year.

FLOUR RATE ADVANCE.—At the conference of shipping companies at Seattle recently the advance of rates on flour shipments from Pacific coast ports to oriental ports from $2 to $3 a ton was discussed.

SHANGHAI-TAIREN SERVICE.—The service was inaugurated by the Nippon Yusen Kaisha August 10th. This service reduces the time to Harbin by railway from Dalny by two or three days rather than by Vladivostok.

SUNKEN WARSHIPS LOCATED.—The search of the Japanese navy for sunken warships off Port Arthur has resulted in the locating of the Yashima, 40 nautical miles to the South of Port Arthur, and the Sebastopol, 30 miles off Laotiehshan.

JAPANESE SHIPPING SUBSIDIES.—The manager of the Japan Shipowners Association announced recently that the ship subsidy for the year 1907 exhausted 60% of the estimated revenue from the business tax and 47% of the income tax making a total of $6,595,000 gold.

URAGA DOCK COMPANY.—Owing to the depression in shipbuilding this company has decided to reduce its expenditure and the night shift has been abandoned. The capital has also been reduced. During the year over 1200 employees have been laid of permanently.

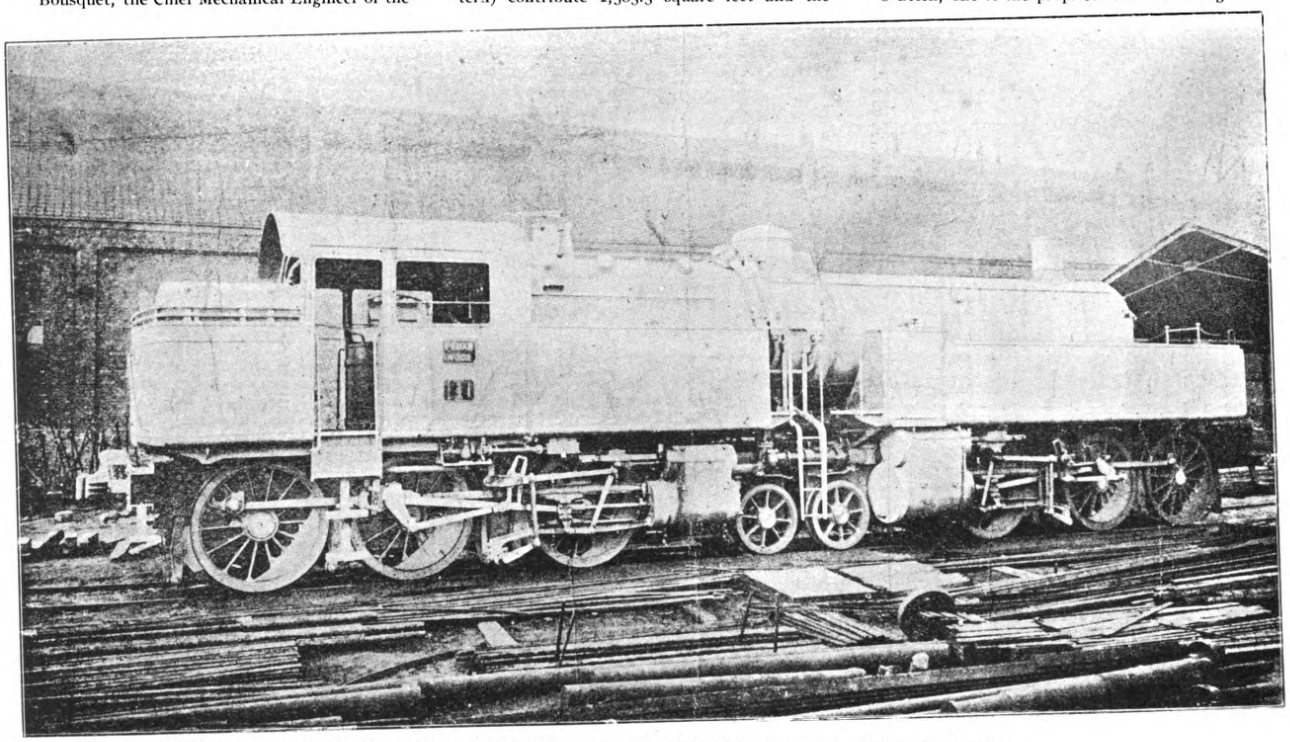
PENANG WHARVES EQUIPMENT.—The legislative council has authorized the expenditure of $142,000 for the purpose of providing lighters, equipment and plant for the purpose of landing, storing and shipping cargo. Additional estimates will be submitted for added facilities in the near future.

JAVA-AUSTRALIAN LINE.—The Royal Steam Packe, Company has inaugurated a service which will include Batavia, calling at the following ports: Samarang, Sourabaya, Balek-Pappan, Macassar, Banda, Dobot Thursday Island, Townsville, Brisbane, and Sydney. The vessel will then return to Batavia.

FENGTIEN DEEP SEA FISHING CO.—This company has been transformed into a government institution and it is the purpose of the government to greatly expand the operations along the coast. Several steamers adapted to deep sea fishing will be put in commission along the coasts of Chinchow, Haicheng, Fuchow and Kaiping.

NEW LOCOMOTIVE FOR PEKING-HANKOW RAILWAY

There has lately been introduced into service on the Peking-Hankow Railway a special type of Articulated 0-6-2: 2-6-0 tank locomotive as illustrated and for the picture and this description we are indebted to our esteemed contemporary "Indian Engineering," says the *Shanghai Times*. This locomotive follows closely the design of the articulated engines introduced some three years ago by Mons. du Bousquet, the Chief Mechanical Engineer of the Hankow Railway follows somewhat the standard pattern used on the famous de Glehn compound express passenger engines of the Nord of France line, although it has an increased grate area, and is provided with somewhat longer tubes than is ordinarily the case. The boiler barrel has a length of 15 feet 10¼ inches and a diameter of 4 feet 9¼ inches whilst its centre line is "pitched" no less than 9 feet 2¼ inches above rail level. The total heating surface is 2,632.06 square feet to which the tubes (130 in number and of the "Serve" pattern) contribute 2,503.3 square feet and the firebox the remaining 129.06 square feet. The grate area is 32.29 square feet and the working pressure of the boiler 214.7 lbs. per square inch. In working order the engine weighs 102 tons, although the maximum load on any pair of wheels is only 15 tons! The engine was built by the Société Anonyme des Forges, Usines et Fonderies, de et à Haine-St.-Pierre, of Belgium.



Courtesy *Shanghai Times*

TYPE OF ENGINE BUILT BY THE SOCIETE ANONYME DE FORGES, USINES ET FONDERIES DE ET A HAINE-ST. PIERRE, BELGIUM, FOR THE PEKING-HANKOW RAILWAY

Nord of France Railway for working the heavy coal traffic from the Lens coal basin, in which service they have proved to be eminently successful. The engine is of the four-cylinder compound pattern, and in addition to having six coupled wheels each bogie is fitted with a pair of carrying wheels in front of the cylinders. The coupled wheels have each a diameter of 4 feet 9¼ inches and the carrying wheels a diameter of 2 feet 9¼ inches. The high-pressure cylinders which are 15¾ inches by 26¾ inches, drive the rear bogie, whilst the low-pressure cylinders, which are 24¼ inches, by 26¾ inches, actuate the front bogie, but when a large tractive effort is necessary each pair of cylinders can receive live steam, thereby very materially increasing the tractive force of the machine. The boiler and side tanks, etc., are carried on a main underframe, which in turn, rests upon the bogie frames. Steam passes from the boiler to a rotatable joint at the back of the firebox, and from this joint a separate steam pipe supplies steam to each high-pressure cylinder. In order that the front bogie may be sufficiently loaded, a portion of the water tanks is arranged on this bogie—sufficient space being allowed between the boiler and the tanks to admit of the angular movement of the front bogie. The front tanks have a capacity of 1,980 gallons of water, whilst the remainder of the water tanks, which are arranged on either side of the firebox, and are supported by the central girder, have a carrying capacity of 836 gallons. The boiler of the locomotives for the Peking-

OBITUARY

The death of Mr. William Jackson, director of the Mercantile Bank of India, removes one of the pioneer bankers of the east whose career has been one of great activity. The deceased joined the Old Mercantile Bank of India in 1856, and when the bank was incorporated under the style of The Chartered Mercantile Bank of India, London and China, he was appointed manager of the Shanghai Branch, and later in 1864 he was appointed inspector. In 1875 he was promoted to the position of assistant manager in London and in 1882 to manager, which position he held for ten years, after which time he became a director of the Mercantile Bank of India, the style name of the organization which absorbed the old institution in 1892.

Posthumous honors were paid the memory of the late General Ma Yu-kun in an edict issued in the name of the Empress Dowager of China. The rank conferred was that of Guardian to the Heir Apparent and a special memorial temple was directed built at Anhui, his birth place. General Ma was one of the most distinguished of China's military officers, and his name is widely known throughout the east. This honor to his memory is an unusual mark of distinction on the part of the Imperial Family towards the Chinese military arm and is taken as an indication of the greater measure of interest taken at Peking in matters military.

The death of Mr. Hebry Reginald Baynes O'Brien, one of the proprietors of the *Rangoon Times*, last month, is reported in the Rangoon exchanges. Mr. O'Brien was connected with the *Times* press for over twenty years and was identified with the growth of this prosperous business.

Malay exchanges announce the death of Mr. Silas C. Penny, formerly editor of the *Pinang Gazette*, from pneumonia in London in August. Mr. Penny was the founder of the *Times of Malay*, which survives him, and the now defunct *Eastern Daily Mail*.

Manila has been unfortunate in the passing of two of her leading businessmen in the death of Mr. Thomas C. Kinney, one of the most prominent members of the Manila Bar and a public spirited citizen whose initiative served in large measure to advance the interests of the country, and in the passing of George E. Wolf, the senior member of the firm of Messrs. Castle Bros.-Wolf & Sons, one of the leading American wholesale merchants of the archipelago.

Mr. Kinney was counsel for the Philippine Railway Company, The Manila Electric Railway Light and Power Company and was president of the Bua Mining Company of Benguet besides being largely interested in the Manila *Times* and other enterprises throughout the islands.

Mr. Wolf was a resident of the islands for over a decade and developed during that period the largest American wholesale business in the islands. He met his death as the result

of an unfortunate encounter with a crazed carabao, while out hunting. His untimely death is a matter of personal regret to many thousands of Americans in the archipelago. While one of the most active and enterprising businessmen, he was ever ready to give substantial encouragement to his struggling contemporaries and his life was devoid of ostentation.

Mr. C. G. R. Broderson, manager of the firm of Messrs. Siemssen & Co., in Hongkong, died at Shanghai very suddenly on October 2nd. Mr. Broderson came to the East about 26 years ago and has been associated with the firm for that period. For sixteen years he was stationed at Hongkong, at the end of which period he was transferred to Shanghai. Subsequently he returned to Hongkong and remained there in charge until his demise. He had been ailing for some time and was at the time on a visit to Shanghai to consult with his physicians. Mr. Broderson was a member of the Court of Directors of the Hongkong and Shanghai Banking Corporation and a director of a number of companies in Hongkong and a gentleman who enjoyed the confidence of a large circle of business associates and friends.

PERSONAL

Mr. C. W. Kinder, C.M.G., the veteran railway promotor of China and Chief Engineer of the Imperial Railways of North China, was recently appointed Special Representative of the Board of Posts and Communications to confer with the representative of the South Manchuria Railway to discuss questions covered by the fifth article of the Japanese-China railway agreement.

M. Klobukowski, the new governor-general of Indo-Chine, arrived at Saigon the latter part of September and was given an enthusiastic reception.

Mr. Francis Loomis, the U. S. Commissioner General of the Grand Exhibition, Japan, arrived at Yokohama on October 3rd.

Mr. D. C. Dick, vice-president of the Shanghai Society of Engineers and Architects, and Mr. C. H. Godfrey, the honorary secretary, recently resigned their respective offices in view of their departure for Europe. Mr. T. H. U. Aldridge has succeeded to the vice-presidency and Messrs. C. Harper and I. Tuxford have been elected joint secretaries.

Mr. E. L. Brockman, resident of Perak, was invested with the C. M. G. by the High Commissioner last month, says the *Malay Mail*.

Dr. H. M. Hillier, commissioner of Chinese Customs, has been granted permission by H.B.M. to accept and wear the insignia of the first class of the third division of the Imperial Order of the Double Dragon.

His Excellency Tong Shao-yi, Special Commissioner to America, sailed last month on his mission on behalf of the Chinese Government.

Mr. Alexander William Still, a well-known British journalist, has accepted the position of managing editor of the *Straits Times*. Editor Still occupied the editor's chair on the *Birmingham Daily Gazette* after which he became a member of the editorial staff of the London *Morning Post*. In 1906 he accepted the position of editor of the *Allahabad Pioneer* and returning to England the following year became a member of the editorial staff of the *Pall Mall Gazette*.

Lieut. Governor Rocadas, the new governor of Macao has assumed his duties.

Major W. H. Anderson, senior member of the well-known firm of W. H. Anderson & Co., returned to Manila, November 15th, after an interesting trip to Java and other points in Eastern Asia.

A report from Seattle announces that Mr. L. M. Wood, editor of the Seattle *Trade Register*, is a candidate for appointment as a commercial agent representing the department of commerce and labor to work up export business for American manufacturers.

Mr. Alfred Cunningham, editor of the *Egyptian Daily Mail* and formerly of the *South China Morning Post*, has been honored by the Emperor of Japan who has conferred on him the order of the Rising Sun.

Mr. A. Jack, assistant engineer of the British section of the Tientsin-Pukow, recently arrived from South Africa, has joined his chief, Mr. Tuckey, at Nanking.

Mr. A. Froelich, formerly assistant engineer of the Shantung Railway Company and later with the German section of the Tientsin-Pukow, has joined the Manchurian Railway as consulting engineer.

Mr. Asano, president of the Toyo Kisen Kaisha, has returned from an extensive European tour.

Dr. Victor Heiser, Chief of the Bureau of Health of the Philippines, is in attendance at the International Tuberculosis Congress in progress in Washington.

Lieut.-Colonel H. Milbourne Jackson, R. E., has been appointed surveyor general of the Federated Malay States. Colonel Jackson joined the Indian Survey in 1883 and had much experience in the work. He served in the Ordnance Survey of Great Britain in 1899, and at the outbreak of hostilities was attached to the headquarter's staff in charge of topographic work. He was later appointed surveyor-general of the Transvaal.

The Hon. Hamilton King, American Minister to Siam, and family, are due to arrive at Bangkok this month.

Messrs. Swan & Maclaren, well-known architects of the Straits Settlements, have decided to establish their offices at Kuala Lumpur.

Mr. C. G. Warnford Lock of the British Malayan Mining Company is on a prospecting tour of the country in the vicinity of Tongkah.

Mr. Thomas Wright of the *Hongkong Free Press* is on a vacation in the homeland.

Mr. T. H. Reid, general manager of the *Straits Times Press*, Limited, and Editor of the *Straits Times*, has resigned and takes up his residence in Engand.

Mr. R. T. Laffin, former general manager of the Manila Electric Railway, paid a short visit to the Philippines recently for the purpose of looking up his mining interests in Benguet. He returned to America last month.

REVIEWS

Who's Who in Mining and Metallurgy for 1908, issued from the presses of the *Mining Journal*, London, is a credit to the founder, Mr. George Safford, and contains 107 pages of biographies of the leading mining engineers and metallurgists in all parts of the world, alphabetically arranged. Besides the biographies, are 179 pages devoted to the history of each of the leading mining and metallurgical societies in different sections of the globe with a revised list of the officials of each to date. The work is neatly arranged and the typographical work excellent. It is the most valuable volume of its kind published in years and is a book of reference that should find a place in the library of every enterprising mining engineer.

Elements of Philippine Agriculture, by Edwin Bingham Copeland, Ph.D., Superintendent of the Insular Agricultural School of the Philippine Islands, has reached our desk and represents the result of much research and labor on the part of the author in a very successful attempt to place a text book covering the elementary study of tropical agriculture. The book is well illustrated and the method has much to recommend it to Philippine Schools or indeed to English schools in other tropical countries. The World Book Company, New York.

Scherzer Rolling Lift Bridges, in revised form, has been received and is a handsome volume. It is splendidly illustrated and devoted to the history of movable bridge building with the development along the lines laid down by the inventor, the late William Scherzer. The plans of several important bridges designed by the Scherzer Rolling Lift Bridge Company Chicago are included in the illustrations.

The Philippine Agricultural Review for August contains a number of interesting articles on Philippine Agriculture among which are "Spanish Agricultural Work in the Philippines" by Edwin Bingham Copeland; "Horse Breeding in Madagascar" by Major T. Bentley Mott, U. S. A., and "Agriculture and School Gardens" by S. C. Kellegher. The number is well illustrated.

The Japan Financial and Economic Monthly for August is up to that journal's usual standard and among other valuable articles is one on the Finance and Economy of Formosa; on Manipulation of National Loan Amelioration Funds and the Exchequer Surplus. The usual trade and financial reports are brought up to date and it is altogether a most valuable number.

The Public Works Statement for 1908, by the Honorable W. Hall-Jones, Minister of Public Works of New Zealand, is a comprehensive review of the activity of the New Zealand Government in public works construction for the year. In all the sum of £1,966,461 16s. 10d. was expended under this head and includes railways, telegraphs, lighthouses, harbors, defences, water power, tourist and health resorts, development of gold fields, improvements, etc. The report is appropriately illustrated.

The "*World Today*" contains an interesting article from the pen of the Hon. Amos P. Wilder, American Consul General at Hongkong, published under the caption "A Consul's Busy Day." The article is illustrated by characteristic scenes from Hongkong and the subject is presented in an interesting form. It should prove interesting to those who believe that the position of American Consul General is a sinecure.

Social Shanghai for September made its appearance in the form of a handsome holiday number liberally illustrated. The frontispiece comprises two views of Chunkungshan and the reverse presents a view of the total wreck of the S.S. *Saikio Maru* at the Saddles. Among the leading articles of interest are: "Some Distinguished Officers of the American Fleet," "Captain Scratch of the 'Prickly Heat,' " "Well-known Residents of Shanghai," "Shanghai Rifle Association," "The American Settlement," "A Shooting Trip," etc., besides a representative department for social notes, "Our Young Folks Corner" and many other attractive literary dishes that make up a most interesting number. It reflects great credit upon the enterprise and literary taste of the editorial direction which is directly under the supervision of Mrs. Sharrock. *The China Weekly*, also under the same management, is being well received according to an editorial announcement.

In the August issue of the REVIEW, we inadvertently accredited an article on gold mining in Mongolia to the *Peking and Tientsin Times* when it should have read *The China Critic*. Both interesting publications are among the most valuable that reach our exchange table. We trust that our tardy correction may be acceptable, not only to our esteemed contemporar but to the *Critic's* enterprising Urga correspondent.

FAR EASTERN ENGINEERING, CONSTRUCTION, COMMERCIAL AND FINANCIAL NEWS

ELECTRIC RAILWAYS, LIGHT, POWER, TELEGRAPHS, TELEPHONES, AIRSHIPS, ETC.

BUND RAILWAY AT YOKOHAMA.—The proposed electric railway along the Bund in Yokohama has been abandoned for the present.

TIENTSIN ELECTRIC TRAMWAY EXTENSION.—The extension of this line to the Quai de France near the custom house was officially opened to traffic, September 1st.

YOKOHAMA ELECTRIC EXTENSION.—The survey for an extension of the Yokohama Electric Railway to Kamakura has been completed and a franchise has been applied for.

FREE TRAMWAY TICKETS IN YOKOHAMA.—During the visit of the American fleet at Yokohama, the Electric Railway Company supplied the officers and men with free transportation.

JOSHIN ELECTRIC TRAMWAY.—A line has been projected from Takasaki by way of Kanaya and Shibukawa to Uyeda station on the government Shinetsu line, a total length of 70 miles.

BANGKOK ELECTRIC LIGHTING.—Messrs. Riley, Hargreaves, Limited, of Singapore, have completed the installation of 37 new lamps in Dusit Park, Bangkok. The current is supplied by the Siam Electricity Co.

WIRELESS IN FORMOSA.—The Japanese government has made arrangements to install a wireless station on Asincourt Island which is located off Keelung so as to establish communication with Japanese ships at sea.

EASTERN RUSSIAN WIRELESS.—The Russian government has authorized the installation of a wireless service between Petropaulovsk and Nicolaivsk as well as the stringing of telegraph wires between Okhotsk and Yukutsk.

NANIWA ELECTRIC RAILWAY.—Progress has been made on the construction of the Tennoji-Kohama section of this line. The original estimate of yen 229,000 has been expended and it became necessary to call on the shareholders for another assessment to carry on the work.

JAPANESE TELEGRAPH SYSTEM.—The announcement is made from Tokyo that the Japanese government has appropriated 140,000 yen to which will be added 214,000 yen from the municipalities for the purpose of establishing 230 additional telegraph offices during the current year.

CHINESE TELEGRAPHS.—The announcement is made at Peking that the Ministry of Posts and Communications has succeeded in securing control of the stock of the Chinese Telegraph Administration held by private parties and that the nationalization of the different Chinese systems will now proceed apace.

KOHSICHANG CABLE LAID.—The *Bangkok Times* announces that communication from Koh Kam Yai and the mainland was established September 21st and the first message dispatched to His Majesty at Bangkok. It was opened to the public last month. The cable used was manufactured in Singapore.

ELECTRIFICATION OF MELBOURNE SUBURBAN LINES.—Mr. C. H. Merz, the expert who recently looked over the situation at Melbourne reports favorably upon the substitution of electric for steam powers on these lines at a cost of approximately £2,250,000. The entire length of track involved is about 124 miles. The cabinet is now considering action.

WIRELESS TELEGRAPHY AT PEKING.—Lieut. Brauzzi of the Italian navy stationed at Peking has been experimenting successfully with a portable field apparatus on the Marconi system between the Italian legation there and the surrounding hills. The wireless equipment at the legation provides communication with war vessels 300 kilometers distant from Peking.

SHANGHAI'S NEW POWER STATION.—A lot in the Eastern District of Shanghai has been secured for a site for a new power station at a cost of Tls. 75,000. The new station has been made necessary by the increase in the demand for power and lighting and the purchase by the Municipal Council was made upon the recommendation of Mr. T. H. U. Aldridge, the electrical engineer.

TOKYO ELECTRIC RAILWAY EXTENSIONS.—The construction of the Hiroo-Ikegami Electric road connecting these two points and covering a distance of about 4.5 miles was commenced this month and it is expected will be opened by February of next year. The cost is estimated at one and one-half million yen and when completed will be connected with the Keihin Electric from the Ikegami end.

TOKYO ELECTRIC LIGHT COMPANY.—The hydro-electric power house recently constructed on the Katsura River is unable to supply sufficient electricity to meet the increased demand in the city and it is the company's purpose to arrange a loan for the harnessing the lower waters of the Katsuragawa. The cost of the Katsura plant exceeded 5,000,000 yen and the necessary works on the lower reaches is estimated to cost in the vicinity of ten million.

PEKING CHINESE CHARTERED ELECTRIC COMPANY LIMITED.—This company has decided to increase its generating plant from 400 h. p. to 1,600 h. p. and expects to have the additional equipment installed by the last of December. The company has cut the price per unit from 36 to 24 cents. The Peking Electric Company, the opposition company, proposes to meet every cut. Mr. van Assum, electrical engineer for Messrs. Buchheister & Co., is in charge of the installation of the Chinese Company.

SYDNEY ELECTRIC LIGHTING.—The *Australian Hardware and Machinery* announces that excavations have been under way for some time for the construction of foundations for a new storage battery house for the city and the cost will run into five figures. This installation was made necessary by the greatly increased output of the city generating plant in order to equalize the loading at the sub-stations. The city council has also authorized the floating of a loan for the purpose of increasing the capacity of the generating and converting plant.

KALGAN KIACHTA TELEGRAPH LINE.—The old telegraph poles on this line are to be replaced at an early date and a reduction of rates is anticipated. The correspondent of the *China Critic* states that there are five telegraph offices in Mongolia as follows:

(1) Pongkiong (called Bunhan in Mongolian) about 200 miles north of Kalgan, (2) Udde-halfway between Kalgan and Urga, (3) Tuerin (Choyrin in Mongolian) about 200 miles south of Urga, (4) Urga, and (5) Mamachin (Maimai-ch'eng) just opposite the Russian town of Kiachta.

RAILWAYS AND RAILWAY SUPPLIES

PEKING-KALGAN RAILWAY.—The Viceroy of Chihli reports that this line will be completed by the end of the year.

YOKOHAMA-HACHIOJI RAILWAY.—The opening of this line took place in October covering a distance of 27 miles. There are nine stations along the route.

MUKDEN JUNCTION OPEN.—The junction of the Imperial Railways of North China and the Southern Manchurian Railway was announced complete October 1st.

SIAM STATE RAILWAYS.—The announcement is made that the standard gauge line has been extended from Pitsanuloke to Bandara and will be opened for traffic December 1st.

CHINESE REDEMPTION LOAN.—The Chinese Railway loan for $5,000,000 has been floated in London and Paris at 98. The bonds bear 5% interest until 1923 and after that date 4.5%.

AMERICAN PASSENGER COACHES IN JAPAN.—The five cars ordered from America for the Kyushu Railway have been tried out on the Tokyo-Yokohama line and have given satisfaction.

SOUTH MANCHURIAN REVENUE.—The receipts for the month of August amounted to 602,548 yen of which one-third was received from passenger traffic and two-thirds from freight carried.

LOKOW STEEL BRIDGE.—The bridge over the Yellow River for the Tientsin-Pukow Railway will cost, when completed, in the vicinity of Tls. 2,000,000. The site has been approved at Lokow.

KASHING RAILWAY COMPANY.—The earthwork is almost finished connecting Hangchow and Kashing but no ballasting has been done or steel laid. Little work has been done on the Kiangsu end.

KOREAN RAILWAYS.—The announced policy of Japan is to connect the Korean system of railways with the Manchurian system the operations to be carried out within three years and at a cost of about 30,000,000.

SEREMBAN-PORT DICKSON LINE.—The relaying the line between these two points and the realignment is now under way. The 30 pound rails will be replaced with 80 pound steel and the distance shortened by about two miles.

JOHORE RAILWAY CONSTRUCTION.—The rails were connected about 60 miles from Johore last month concluding connections by rail between Johore and the F. M. S. The line will not be opened for traffic until next year.

KIRIN-CHANGCHUN RAILWAY.—It is estimated that the northern section will cost in the vicinity of three million and a half taels. Advices from Pekng have it that active construction work will commence at an early date.

YIHSIEN-ZECHOW BRANCH.—The Chino-German Coal Mining Co. has petitioned for a branch line to connect the mines in Shantung with the Tientsin-Pukow for the purpose of disposing of the product along the line of railway.

NEW ZEALAND RAILWAYS.—The latest acquisition by the New Zealand government is that of the Manawatu Railway covering a distance of 84 miles for which was paid the sum of £925,000. The line will be taken over December 7th.

NEW CHINESE RAILWAY ENTERPRISE.—The formation of a company at Nanking promoted by H. E. Sheng Kung-Pao, has been concluded for the purpose of securing the contract for constructing the Anhui section of the Tientsin-Pukow Railway.

KASUR-LODHRAN EXTENSION.—The Indian Government has sanctioned the construction of a 5 feet 6 inch gauge railway from Kasur on the North Western Railway to Lodhran a distance of 202 miles and which will form a part of the Southern Punjab Railway.

SZECHWAN-HANKOW RAILWAY.—The gentry of Hupeh have urged the authorities to raise a loan for the completion of this line before further action be taken for securing funds for the Canton-Hankow. They want to raise about 15,000,000 taels for the purpose.

INDO-CHINESE RAILWAYS.—It has been announced that the Laogai-Mengtze section of the Yunnan line will be opened for traffic by the end of 1909 and the entire line to Yunnanfu by the end of 1910. Of the Saigon-Langhian line about 45 miles is now in operation.

CANTON-HANKOW CONSTRUCTION.—Latest advices from the scene of operations indicate that the line will be open to Wongshek by the end of the year. The sufferers from the severe floods in that region are offering their services to the railway so that labor is plentiful.

PEKING-HANKOW REDEMPTION LOAN.—A report from Peking has it that arrangements have been concluded to raise a domestic loan in the provinces of Kiangsu, Hupei, etc., to the amount of Tls. 50,000,000 for the purpose of redeeming the Peking-Hankow line.

CONTROL OF CHINESE RAILWAYS.—Imperial sanction has been asked to the authorisation of Liang Shih-yi, Chief Secretary of the Department of Railways, to supervise the control of the railway lines operated throughout China by the central and provincial governments.

CHEFOO-WEIHSIEN RAILWAY.—The promoters of this line are sanguine of success in securing the consent of the Peking authorities. The capital subscribed is Tls. 5,000,000 all by Chinese capitalists. First section planned for construction connects Chefoo and Huangshan, a distance of 75 li.

PUKOW-HSINYANG RAILWAY.—Negotiations with a view to concluding a loan agreement for the construction of this line similar to those arranged in regard to the Shanghai-Hanchow-Ningpo line, are well under way. It will be remembered that the concession for the line was granted the British and Chinese Corporation in 1898.

SHANTUNG RAILWAY COMPANY.—The announcement is made that the receipts of this company for the half year ended June 30th, 1908 show a profit of $1,191,000, a falling off of about $40,000 compared with the corresponding term 1907. The floods in August resulted in serious damage to the line, carrying out several dams between Yang Chia-kwang and Cho-Tien.

CANTON-HANKOW RAILWAY.—Sir Chen Tung Liang Cheng, the director-in-chief of this construction, announces that 107 li of this line is in operation and 40 li of earthwork completed. Out of the six million taels made available there is a balance of over Tls. 2,500,000. There is also a stock of supplies on hand valued at 900,000 taels, the balance of Tls. 3,500,000 expended is accounted for in the purchase of right-of-way and construction, etc., says the *South China Morning Post*.

NATIONALIZATION OF JAPANESE RAILWAYS.—The Japanese government has decided to issue 250,000,000 yen worth of bonds for the redemption of railways during the current fiscal year as follows:

Hokkaido Tanko Tetsudo	30,997,100
Kobu Tetsudo	14,599,550
Nippon Tetsudo	142,523,532
Sanyo Tetsudo	76,639,200
Nishinari Tetsudo	1,847,900

NEW SOUTH WALES LOCOMOTIVE WORKS.—The State Treasurer of New South Wales has announced that the locomotives built by the Clyde Engineering Company had proved a success and that imported locomotives had not demonstrated any superiority over the local manufacture, says the *Australian Hardware*. In addtion to the locomotives supplied by the home manufacturers an order has been placed for 75 additional locomotives by the government with English firms.

CHINESE MATERIALS FOR THE TIENTSIN PUKOW.—Arrangements are being made with the Chihsin Cement Factory at Tangshan for the supply of the product for construction work on the Northern Section of the Tientsin Pukow Railway and to secure the steel from the Peiyang and Shantung Arsenals for the same section, while for the Southern Section the arsenals at Nanking and Hanyang together with the steel works of Hangyang will be given the contract to supply steel to the extent of their capacity. Messrs. Jardine Matheson & Co., Limited, secured the contract for the supply of Oregon pine recently advertised by the company.

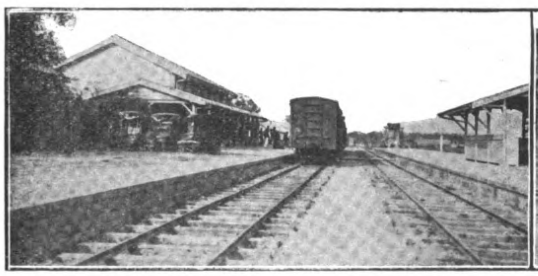
INDIAN RAILWAY CONFERENCE.—The following are the delegates to the Indian Conference at Simla now in convention:

President, Mr. W. M. Dring; Secretary, Mr. D. Ross Johnson; Delegates, Messrs. Y. Wood, W. B. Simson, E. A. Neville, J. Manson, A. Rowland, E. Johns, C. H. Windle, A. Muirhead, C. M. Pearce, F. K. Rickards, W. Pendlebury, R. Todd, A. R. Anderson, N. Priestley, Major A. D. G. Shelley, Colonel C. H. Cowie, the Thakur Sahib of Morvi; also representatives of the Bengal Dooars Railway, North-Western Railway, Oudh and Rohilkhand Railway, Rohilkhand and Kumaon Railway and the Shahdara-Saharanpur Railway. Other officers attending are Messrs. C. V. Blis, A. M. Clark, F. W. Harrison, G. F. Guy, R. E. Pigot, W. P. Johnson, H. B. Huddleston, F. Palmer, A. Muirhead, J. Shaw, W. B. Wright, F. D. Kiernander, T. J. McCloughin and W. C. Gage. Pending the opening of this annual meeting the Simla Committee is considering the question of the simplification of goods traffic. The members are Messrs. Muirhead, G. I. P. R.; Pearce, E. I. R.; Lightfoot, Bengal and North-Western; and Bean, North-Western ailway.

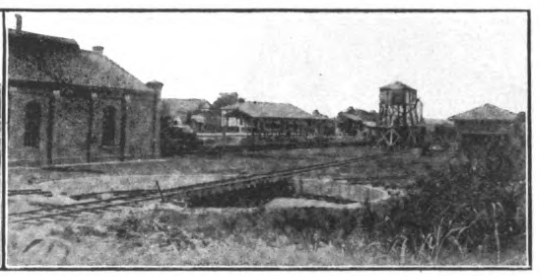
THE TRANS-FORMOSAN RAILWAY

On October 24th, 1908, the Trans-Formosan Railway connecting the Port of Keelung at the North and Taokow, a port on the South, traversing a distance of 247 miles, together with 25.5 miles of branch lines, was officially opened by H. I. H. Prince Kanin, amid great enthusiasm, and thus was concluded a ten years program of railway building in Formosa initiated in 1899 over a year earlier than contemplated by the Japanese Government.

H. I. H. Prince Kanin was accompanied by Count Sakuma, Governor-General of Formosa; Count Tanaka, Minister of the Imperial Household Department; Viscount Okabe, Minister of Justice; and Mr. Oshima, Chief of the Formosan Administration. The party travelled from Taipeh to Taichu where the celebration was held on the morning of the opening, and upon their arrival about noon speeches were made and a program of entertainment in



TAICHU RAILWAY STATION, FORMOSA



TAINAN RAILWAY STATION, FORMOSA

When the Japanese assumed control of the island after the Chino-Japanese War they found 62 miles of railway built by the Chinese Government and in operation joining Keelung and Shinchiki. This line represented a cost to the Chinese administration of approximately 1,295,960 taels, and through lack of encouragement by the Peking Government it had not been properly maintained, although Governor Liu Ming Chuan, the progressive executive, used every influence to extend the line and keep it in good shape. His resignation in 1891 concluded all progress in any direction and when the Japanese assumed control on 1995 and decided to extend the railway it became necessary to reconstruct the 62 miles to which they fell heir.

which the aborigines participated was carried out with great enthusiasm. On the following morning the visitors took the train for Tainan and the next day went on to Taakao returning to Tainan the same evening. The next day the trip to Taipeh began and, on the morning of the 30th, the party left the last named point for Keelung to take the Japanese Cruiser Anegawa for Japan.

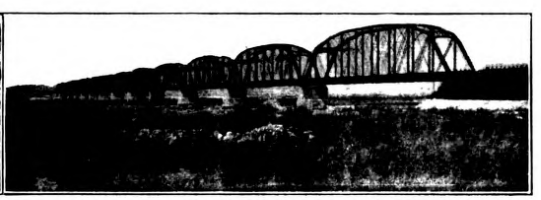
Governor Ting of Formosa was the first Chinese official who took an interest in railway construction in Formosa and advocated without success this program. The Peking government refused to give the proposition any sanction and indeed in 1877, when the Woosung railway tragedy was enacted and Peking was seeking for some returned spot in which to

tinued until 1893 at which time the line was completed and opened to traffic for a distance of 62 miles connecting Hsinchu with the Northern Port of Keelung. At this period of railway construction the Peking government issued an order to suspend further operations, and the proposal to improve the Port of Keelung was not encouraged and trade fell off. In fact all the collieries were closed and, with the exception of passenger traffic, there was little activity in transportation. Governor Liu Ming Chan resigned in 1891. The line deteriorated for lack of maintenance, and when the island was turned over to Japan, it was in very bad condition.

The Japanese, however, have fully appreciated the value of the line across the island and did not hesitate in carrying out the project with the greatest possible expedition. The port of Keelung, which was formerly neglected by the Chinese government, has been greatly improved and a program of increasing and extending the facilities of this important harbor is being carried out at large expense.

Besides the trans-Formosan insular line between Keelung and Takao (242 miles), Taipeh

NEIGHBORHOOD OF TAKAO R. R. STATION, FORMOSA



DAGKUSUI RAILWAY BRIDGE, FORMOSA

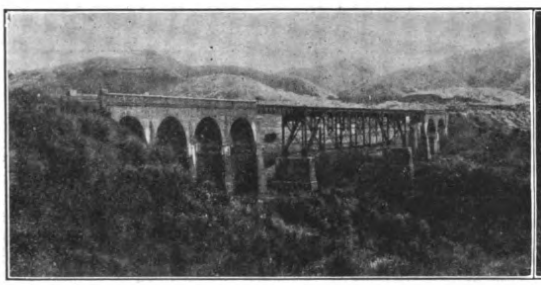
In 1899 a ten-year campaign was inaugurated during which time it was proposed to expend yen 30,000,000. As evidence of the energetic manner in which the scheme was carried out, it cost yen 1,250,000 less than the estimate and was concluded a year before the ten years were up. Besides this, at least yen 300,000 were expended out of the funds for the construction of several railway hotels along the line. The reduced cost of the entire construction to the government was largely effected by the revenue from the line built under Chinese control after reconstruction.

The branch lines include the Daitotei-Tamsui line, 13.6 miles in length; the Takao-Kyukyoku line, 13.6 miles; and a temporary line 1.3 miles in length.

relegate the wreck, the island of Formosa was chosen, and it was dumped there probably as an object lesson to the progressive governor and to emphasize the anti-progressive attitude of the Chinese government at the time. The removal of the capital of Formosa from Tainanfu on the coast to Taipeh on account of the danger from invasion served Governor Liu Ming Chuan, who had succeeded Ting, as an excuse for the construction of a railway connecting the capital with the coast. He managed to build twelve miles connecting Tuatutia and Saitingka, and this section was opened to traffic in 1889. Even this small section was evidence of the tenacity of Governor Liu Ming Chuan in battling with the prejudice at Peking against the innovation. The work was con-

Tansai line (14 miles), and Takao-Kyukyokudo line (10½ miles), all conducted by government enterprise, there are in southern Formosa several private lines constructed by the sugar manufacturing companies. Due to hastened work these lines are all nearly completed, and are expected to be running by next December when the season opens for sugar manufacture. Though the lines were mainly intended for the conveyance of raw materials and manufactured articles yet they obtained permission to carry passengers and goods. As they are all connected with the government lines and the latter will eventually absorb goods from the districts along the private lines their relation with the government lines will be just the same as if they are branch lines.

Among the rest the Ako Railway constructed by the Taiwan Sugar Company is built on the eastern basin of the Lower Tansin, the place abandoned by the government as hopeless. Of the total length of 80 odd miles over ten miles have already been completed connecting with southern terminus, Kyukyokudo station, of the government line and are actually carrying the construction materials of the sugar factory and the products of the districts along the river. The government has promised the annual subsidy of 10,000 yen for the construction and maintenance expense of the railway bridge on the Lower Tansui. The mileage of the private lines is as follows:—Dai Nippon Sugar Co., 46 mls. 72 chns.; Oriental Sugar Co., 45 mls. 37 chns.; Ensuiko Sugar Co., 80 mls.; Meiji Sugar Co., 37 mls. 27 chns.; Taiwan Sugar Co., 39 mls. 76 chns.; Shin-wo Sugar Co ; 11 mls. 25 chns ; Taiwan Sugar Co. (Ako line), 80 mls., the total length being 358 mls. 41 chns. Of this the length of the lines already opened to traffic is 200 odd miles and the rest is expected to be finished by January next year.



SECOND BRIDGE OVER THE NAISHIWA, FORMOSA

HOKUTO HOT-SPRING, FORMOSA

OBITUARY

A cablegram from London announced the death there on November 6th of Mr. Archibald John Little, one of the oldest British pioneers of Eastern Asia. Of his remarkable career the *China Mail* says:

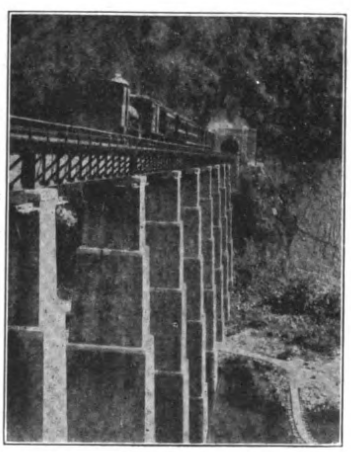
"Mr. Little reached his seventieth birthday last April, having been born in Fenchurch street, London, in 1838. Coming out to Hongkong in 1859, as a teataster for Messrs. Siemssen and Co., he remained with them till 1862, when he moved to Kiukiang, later establishing himself at Shanghai. Many exciting adventures were crowded into those early years, for we find him as a volunteer in Shanghai in 1860, assisting in repelling the attack of the Taiping rebels, while in the same year he visited the Imperial and Taiping camps in Kiangsu and Chekiang. At Anhwei he was mobbed as a spy and nearly killed, and returning to Shanghai in 1861 he served in the Volunteer Artillery during the rebel disturbances of that and the following year. He was attacked, stunned, and bound by Imperial soldiers in the streets of Hankow in 1862, and was mobbed and severely handled by porcelain potters in Kin-teh-chin in Kiangsi in 1864. Years of comparative calm followed, during which he travelled extensively throughout the Eighteen Provinces collecting the facts and information which he was afterwards to use to such advantage in his books, "Through the Yangtze Gorges," "Mount Omi and Beyond," "The Far East," the latter being one of the best descriptions of the resources and topography of the eighteen provinces of China to be found anywhere. In 1880 Mr. Little served on the Municipal Council of Shanghai and three years later made the journey to Szechuan which resulted in the formation of the Chunking Trading Association. In 1886 he married Mary Amelia Hollingsworth of Leicestershire, and new interests came into his life, for his wife, who had done much philanthropic work before her marriage, became in China the organizing Secretary of the Tien Tsu Hui, or Anti-footbinding Society. In this work Mr. Little lent hearty assistance, and residents in China know the great success which has attended the long needed reform. In 1898 Mr. Little, entering into partnership with Chinese capitalists, started mining in Szechuan, and in the February of that year made the first ascent of the Yangtze rapids in a small steamer. This vessel, called the Pioneer, established steam communication between Chunking and Tchang, and the vessel was subsequently bought by the British Government and converted into the river gunboat Kinsha. The last ten years of his life Mr. Little spent principally in advocating the expediency of British capitalists developing the resources of western China, and in furthering the many businesses and mining schemes he had set going in Szechuan. He was a painstaking and attractive writer on all subjects concerning China, his work appearing not only in book form but in the leading journals of England and America. For his services to the science of Geography he was elected a Fellow of the Geographical Society, while he also became a Fellow of the Royal Colonial Institute. He leaves a host of friends throughout the Far East who will sincerely mourn his loss. St. Paul's school was his *alma mater*."

RESIGNATION OF MR. KINDER

Dr. Morrison of the *Times* has the following to say about the recent resignation of Mr. Kinder, the Engineer-in Chief of the Chinese Northern Railways and who has identified with railway construction and operation in China since the first survey was undertaken:

"Wide regret is felt here at the resignation of Mr. Kinder, the engineer-in-chief of the northern railways, who is leaving his post after 30 years of distinguished service. He is the founder of railway construction in China, having, in the face of immense opposition, constructed the northern railways, now the chief productive work under the control of the Ministry of Communications.

"The reason for his resignation given by Mr. Kinder in his letter is simply that of his age, 56, and a desire to return to England. It is well known, however, that he is in vigorous health, and that his resignation has, for some time past, been inevitable. He has been deprived of all real authority, objectionable contracts were entered into without his knowledge, binding the railway for terms of years, trustworthy English employees were summarily dismissed without reference to him, so that his position had become intolerable. Yet Englishmen are directly interested to the amount of £2.000,000 in the railway which he was supposed to control, and the service of the new loan of £5,000,000 will mainly be dependent upon the earnings of this important railway."



1ST BRIDGE TUNNEL AT "TAIAN KEI," FORMOSA

FAR EASTERN ENGINEERING, CONSTRUCTION, COMMERCIAL AND FINANCIAL NEWS

ELECTRIC RAILWAYS, LIGHT, POWER, TELEGRAPHS, TELEPHONES, AIRSHIPS, ETC.

WIRELESS IN THE PACIFIC.—The distance between Honolulu and San Francisco, 2,100 miles, has been covered by wireless.

TOKYO ELECTRIC EXTENSION.—The extension recently completed by the Tokyo Electric Railway Co. from Tengenjibashi to Shinobashi has been opened to traffic.

KAMAKURA RAILWAY EXTENSION.—The construction of this line by the Yokohama Electric Railway Co. began last month. The purchase of land and materials was concluded in October.

TOKYO ELECTRIC LIGHT CO.—The survey of the new extension to the generating work, necessary to meet the increased demand for light and power, is now complete, and the construction necessary to carry out the present plans of the company will cover a period of over four years.

WIRELESS FOR CHINESE ARMY.—The President of the Ministry of Posts and Communications has recommended that students be sent to foreign countries for the purpose of studying the different systems of wireless telegraphy with a view of introducing it in the Chinese army.

ZAMBOANGA ELECTRIC LIGHTING.—Mr. P. Wessman' chief of the engineering department of Messrs. Behn Meyer & Co. of Singapore, recently visited the Moro capital, says the *Mindanao Herald*, for the purpose of studying the problem of a system of lighting and water supply for the city.

SEISO ELECTRIC RAILWAY.—The construction of this line which was delayed for some time is now definitely arranged and Messrs. Siemens Schuckert Co. have secured the contract for the supply of the materials. This line is proposed to connect the temple at Narita and the Sogo shrine at Sakura.

CHINESE TELEGRAPHS.—After the new year, steps will be taken to lay two telegraph lines, the first from Szechuen to Tai Chien-lu, then to Li-tang and Pa-tang, and finally to Lhassa in Tibet. The second line is to be run from Sui-lai-hsienin New Dominion to the Altai Mountains with 16 intermediate stations between.

The length of the two lines in question will be between 6,000 and 7,000 Chinese miles, and will cost about 1½ million taels.

WIRELESS FOR TYPHOON PROTECTION.—The Philippine Government proposes establishing a wireless station on one of the islands of the Batanes to the North of Luzon in connection with the Philippine Weather Bureau for the purpose of increasing the facilities for giving warning of threatening storms, not only to Manila, but to Hongkong and other Chinese and Japanese ports as well. The suggestion was made by the Governor of Hongkong.

RAILWAYS AND RAILWAY SUPPLIES

TOYAMA-UOTSU RAILWAY.—This line was opened for traffic on November 16th.

CEYLON NORTHERN RAILWAY.—The administration of this line is now busy substituting 86 lb. for 46.25 lb. steel throughout.

BRANCH LINE TO MACAO.—The preliminary survey of a branch line of the Canton-Hankow to this point is now under way.

NO-SMOKING CARS.—The Japanese government has introduced these cars on the Tokaido line and it is the intention to extend their use on all the Imperial Railways.

SINGYANG-CHOW-PUKOW RAILWAY.—H. E. Lu Hai-huan, Director General of the Tientsin-Pukow Railway, has been announced as the probable Director General of this line in addition to his present duties.

TIENTSIN-PUKOW REDEMPTION.—The people of Chihli and Shantung have decided to increase the price of salt by four cash per cattie and to set aside the proceeds for the purpose of redeeming the loan.

TRANS-AUSTRALIAN RAILWAY.—The survey of this important line, according to latest reports, has proceeded for a distance of over 300 miles and the country traversed gives promise of satisfactory returns for work of development.

MEKLONG RAILWAY COMPANY, LTD.—A charter has been granted this company by the King of Siam and represents the amalgamation under the above style name, the old Meklong Railway Co. and the Tacheen Railway Co., Limited.

JOHORE RAILWAY.—The opening of the Johore Railway is scheduled for February, 1909, and night trains will begin about next June. When these plans are carried out, the trip by train from Singapore to Penang will be one continuous journey.

SOUTH MANCHURIA RAILWAY.—October monthly returns show a marked increase in revenue and it is expected that the receipts for the second half of the year will reach yen 5,000,000. The receipts for October averaged over yen 30,000 daily.

LHASSA-CHUMBI RAILWAY.—The Board of Posts and Communications has granted permission to the Dalai Lama of Tibet to arrange a loan for the construction of a railway connecting these two points and to develop the mining interests along the route.

LAOKAI-YUNNAN LINE.—Reports from Mengtze are to the effect that the railway will be connected with that point by July next year. The bridging of the chasm at 94 kilometer post, which has been accomplished, removes all obstacles to the rapid construction of the line.

PEKING-KALGAN EXTENSIONS.—With the completion of the main line to Kalgan next spring, it is not improbable that extensions to Urga in the north and Kansu in the west will be started. The Commissioner of Railways is now busy preparing plans to carry out the work.

CHINESE RAILWAY BUREAUX.—The establishment of bureaux throughout the different provinces, where railways are in operation, is favored by the Grand Council and the matter is now being considered by the provincial authorities and, with their approval, it is not improbable that the organization will be effected at an early date.

NORTHERN SIAMESE RAILWAY.—The 63-mile section between Pitsanulake and Bandara was expected completed by the end of November. Some delay was occasioned by the severe floods in the construction of the bridge across the Menam at Bandara, and according to the *Bangkok Times* it will not be completed until about next April.

NARROW GAUGE FOR CENTRAL SHANTUNG.—Merchants of Central Shantung have decided to construct a short narrow gauge railway to connect Lokou and Tsinanfu. This will connect the Hoangho with the Shantung Railway and serve to handle the traffic until the completion of the Tientsin Pukow which will serve the same purpose.

KWANG-CHENG-TZE-KIRIN RAILWAY.—Two routes were submitted to the joint commission of Chinese and Japanese engineers recently at Harbin and it has been decided to adopt the more Southern route. This survey is 73 miles in length and the cost of construction is estimated at yen 5,000,000. The Chinese are endeavoring to have the contracts awarded Chinese firms.

YUNNAN-SZECHUEN RAILWAY.—Viceroy Tieh Liang of the Yun Kwei Provinces is the authority for the statement that the sum of 50,000,000 taels should be raised before a start is made on the construction of this line. He also claims that at least fifteen million could be raised from different sources including subscriptions, duty on corn, taxes on the Ko Ku lead mine and a lottery.

REDEMPTION OF JAPANESE IMPERIAL RAILWAY BONDS.—The following amounts will be redeemed during the year 1909.

Railway.	*Amount.*	*Date.*
Kobu	14,599,550	31-3-09
Tanko	30,997,100	"
Nille (?)	142,523,600	30-4-09
Ganyetsu	2,112,837	"
Sanyo	76,639,200	31-5-09
Nishinari	1,146,200	"
Total	268,719,187	

IMPERIAL INTEREST IN RAILWAY CONSTRUCTION.—The Peking government is urging the provincial authorities to give every support and assistance to the railway authorities in the construction of the Canton-Hankow and Chengtu-Hankow lines. There is every evidence that these lines will be pushed to completion with the assistance of foreign capital. The continual dissension among the Chinese merchants, in connection with the local Chinese companies, has been responsible for the continued delay, and the Peking authorities propose to remove every obstacle to the prompt construction of the main trunk lines projected.

PUBLIC WORKS, DOCKS, WHARVES, ETC.

KLANG PUBLIC WORKS.—During the year, the sum of $657,012 was spent by the public works department, but few of the projects provided for were completed.

YALU RAILWAY BRIDGE.—The construction of this important bridge will probably begin next April. Mr. Ishikawa of the Korean Railway Bureau will have charge of the work.

SINGAPORE RIVER BRIDGE.—The work of construction is now under way. The Westminister Construction Co. is in charge of the work of building the abutments and Messrs. Howarth, Erskine, Ltd., have the main contract.

CANTON TYPHOON SHELTER.—The proposal for the construction of a breakwater in connection with the Canton harbor improvement for the purpose of giving adequate protection to shipping is being considered by the Canton Government.

KOWLOON WHARF COMPANY'S NEW WHARF.—The contract for the construction of a new wharf for the Kowloon Wharf and Godown Co., to replace wharf No. 1 destroyed by the recent typhoon, has been let to the Hongkong and Whampoa Dock Company.

CHINESE NAVAL DOCKS.—The construction of two dockyards, one in the North and another in the South, has been practically decided upon by the Chinese Government. No definite action has been taken in disposing of the contracts and much interest has been aroused in this connection among engineering and construction companies.

MANILA'S NEW WATER SUPPLY.—The water was turned on in the new system November 12th and marked the completion of one of the most important public works in the islands. The supply is taken from a point 20 miles north-east of the city where 140 square miles of forest and mountain are reserved from settlement. It has a capacity of 50,000,000 gallons daily and cost approximately ₱4,000,000.

SAIGON PUBLIC WORKS.—The French have laid out nearly 2,000 miles of roads. New quays about a mile and a quarter in length are being constructed, where ships can moor at low water, and along which there will be warehouses from 85 to 95 feet broad. There is also a floating dock under construction to be used by merchant vessels only. The imports and exports of merchandise, which were valued at 30 millions of dollars in 1893, have since increased fourfold.

NEWCASTLE SEWERAGE.—Work in connection with the sewerage of Newcastle, N.S.W., is being pushed ahead, and the city sections are nearly complete. Tenders are now being called for the construction of the Waratah main sewer—the first section—which will connect with the Newcastle and suburbs low-level sewerage. Early in November tenders were invited for the second division of the city low-level sewerage, including portion of the suburbs of Hamilton and Wickham. Plans are in hand for No. 1 pumping station, and plans will shortly be commenced for the completion of the reticulation of Hamilton and Wickham.

WHARFAGE ACCOMMODATION AT NEW ZEALAND PORTS.—The Wellington Harbor Board has obtained Parliamentary sanction to a loan of £1,000,000 for erection of new wharves, extension of present wharves, construction of graving dock and other harbor works, says *The Australian Hardware Journal*. The Auckland Harbor Board has been empowered by Parliament to raise a loan of £1,000,000 for harbor works, the principal items of which are:—Eastern breakwater, £150,000; erection of wharves, £290,000; wharf sheds, £40,000; quay, £63,000; reclamation, £78,000; cranes, £50,000; Freeman's Bay wall, £40,000; buildings, £50,000; steam tug, floating crane, and dredging appliances, £118,000.

SHIPBUILDING, GENERAL MARINE AND FISHERIES

TORPEDOER CONSTRUCTION.—The British Admiralty has placed an order with Messrs. J. Brown & Co. of Clydebank for three torpedo boat destroyers.

CHIYO MARU.—The Chiyo Maru, sister ship of the Tenyo Maru, was turned over to the Toyo Kisen Kaisha the latter part of October and is on the Hongkong-San Francisco run.

HONOLULU-SEATTLE LINE.—The steamer Pleiades, formerly of the Boston Towboat Company's fleet, has been sold to the Matson Steamship line and will ply between Seattle and Honolulu.

JAPANESE WHALING GUILD.—An amalgamation of the eleven leading whaling companies of Japan, which represent a capital of about 3,000,000 yen, is being perfected in the form of a guild.

KAWASAKI DOCKYARDS—Besides the construction of a gunboat and three torpedoers for the Siamese Government this company has received a further order for several warships from Siam.

BORNEO SHIPBUILDING.—The China-Borneo Company recently launched a new lighter for the New Borneo Tobacco Co., Ltd. Her dimensions are: length 55 ft., beam, 15 ft. and depth 7 ft. 6 in.

SIBERIAN FISHERIES.—Danish capitalists have secured a twelve-year concession from the Russian government giving them the control of the salmon fisheries on the coast of Siberia and in the Sea of Okhotsk.

WATERHOUSE CUTS RATES.—Frank Waterhouse and Company have cut the rates for steerage to $25 with a rebate of $5 between Seattle and China. The regular fare is $43.50. Other cuts are expected on other lines to meet this rate.

JAPAN-KOREAN LINE.—Arrangements have been made for the establishment of a line of steamers connecting Japan, Fusan, and other Korean Ports. The Korean government has guaranteed a subsidy of yen 17,019 per annum for five years.

TAIKOO ENGINEERING AND SHIPBUILDING CO.—This company was awarded its first contract from the British Admiralty recently at Hongkong when it secured the contract for the construction of a target float to be used in target practice in those waters.

BANGKOK DOCK COMPANY.—This company launched the new steel towing barge constructed for the East Asiatic Company, Limited, on October 26th. Its length is 115 feet over all; breadth, moulded, 25 feet; depth moulded, 12 feet. It has a carrying capacity of 500 tons dead weight.

YANGTZE RIVER TRAFFIC.—Over 90,000 tons are represented by the merchant service. There is much competition with the result rates have been greatly cut during the last few years. An effort has been made by the different companies to get together and arrange a schedule but without much success.

MINDANAO FISHERIES.—The merchants of Zamboanga are greatly interested in the Moro fisheries, and arrangements are being made for refrigerator accommodations on a steamer to ply between the island ports and Manila, to be utilized to carry fresh fish to Manila and frozen meats from the latter point to the Mindanao ports. From what can be learned the fisheries of Mindanao are the most extensive and valuable of any of the Malaya group.

Manchuria, Japan, Indo-China, Siam, Straits Settlements, Malay States, Burma, India, Malaysia, and the Philippines

ILLUSTRATED FEATURES Trade in Shantung—Tsingtau—Manila Army and Navy Club—Trade of Nagasaki—Launching Submarines in Manila Bay

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THE FAR-EASTERN REVIEW

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FAR EASTERN COMPANY REPORTS

TA CHING BANK.—The profits of this institution for the year are reported at Tls. 890,000 and the recommendation was made to put 20% in the reserve fund.

JAPAN-CHINA S. S. CO.—The net profit for the half year including balance from last term was yen 113,000 out of which a dividend of 2.5% was directed paid; yen 5,000 placed in the reserve and the balance forward.

THE BRITISH AND CHINESE CORPORATION, LIMITED.—At the Tenth Annual General Meeting, held at the Cannon Street Hotel, London, E. C., on November 26, 1908, Mr. W. Keswick, M.P., in the chair, the notice convening the meeting and the Auditor's Report having been read, the Chairman addressed the meeting as follows:—

Gentlemen:—Our meeting to-day seems to the Board an appropriate occasion to briefly refer to the origin and history of our Corporation, which, as most of you are aware, was promoted by the Hongkong and Shanghai Banking Corporation, and by my firm of Jardine, Matheson & Co., of China, who had jointly entered into a number of preliminary Contracts for Loan issues in connexion with Railway Construction in China, and the Corporation was registered in London in 1898.

At that time the Chinese had built a portion of the Peking-Tientsin Shanhaikwan Newchwang Line, called the Northern Railways of China, and in 1899 our first Loan was issued on the security of the Railway and guarantee of the Imperial Government. The issue was received with great favor, being more than four times over-subscribed, and the result indicated that Investors were ready and indeed eager to finance such Railway enterprises, and but for the untoward events in Peking and the anti-foreign movement in many parts of China which so quickly followed the emission of the Loan, the other Railway Loans provided for by the Corporation's Agreements would have been marketed equally successfully, and with advantages to China and the Corporation.

The effect, however, of the "Russian Scare" and the "Boxer Rising" seriously affected Chinese credit, and for a time impeded Loan issues, the partial destruction of the Northern Railway and its necessary occupation by Foreign Powers producing a natural collapse of confidence. Notwithstanding these difficulties, the service of the Loan was punctually met, and the Railway eventually restored to the Chinese and its condition made good. This Railway has since been developed into a magnificent asset of the Chinese Government, and is a monument to the practical talent, earnest zeal and persistent energy and effort of Mr. Kinder, its Founder and Engineer-in-Chief. Mr. Kinder is shortly retiring from the scene of his brilliant success and the supervision of his great work, but it is to be remembered that he will leave behind him a well-trained staff and a complete organization, and that there need be no misgivings as to the needful supervision and management of the line, while by the terms of the Loan Agreement, the new appointment of Engineer-in-Chief is to be made by the Railway Administration, in consultation with the British and Chinese Corporation. It is understood that Mr. Kinder has suggested a successor in whom every confidence may be placed.

There was, owing to the condition of China, a long period of inactivity, and it was not until 1904 that the first instalment, £2,250,000, of the Shanghai Nanking Railway Loan was issued, and unfortunately at a time when the political situation was generally unsettled and when the terms of issue were not so favorable as was looked for, and the Corporation's share of participation in future profits of the Railway had therefore to be added as an inducement to subscribers. The reception of the Loan was disappointing, but when the second instalment, £650,000, was issued the conditions were satisfactory and at par the subscription was readily taken without any right to participation in profits.

The terms of the Shanghai Nanking Railway Loan Agreement included the constitution of a Board of Commissioners consisting of two Chinese and three Englishmen, including the Engineer-in-Chief, and to this provision is attributable the fact that the Engineer-in-Chief has been enabled, in spite of much obstruction, to complete the Railway within the five years stipulated for. We offered to build and equip the line within three years if the Chinese Government would allow us to make a contract on their behalf with a responsible firm of Railway Contractors, and this arrangement, if only it had been sanctioned, would have saved the Chinese Government the loss of two years' interest and gained two years' revenue, but the Chinese did not respond to the suggestion.

The Railway, however, is completed, and although I am not in a position to lay before you official figures, I may mention that our information is that the Railway is securing a large passenger traffic and is more than earning its working expenses. The goods traffic is so far small and the difficulty which is depriving the Line of income from this source is the paralysing effect of the Lekin exactions, but for which it is believed there would undoubtedly be a substantial surplus to divide. Lekin is the ill-defined irregular, local and district exactions on goods which are so troublesome throughout the country, but as the Chinese Government are responsible for the Interest on the Loan and are entitled to four-fifths of any surplus earnings, there would seem to be every incentive to a settlement on a defined basis.

Meantime, on behalf of the Corporation and all other holders of Net Profit-Sub-Certificates, we are doing all we can to urge on a settlement.

After interminable and almost exhausting delay and difficulties, the Canton-Kowloon Railway Loan for £1,500,000 was issued last year at par. The Engineer-in-Chief has completed his final working survey and estimates, and is urging the Chinese to push on with construction. This line will connect with the Railway which is being made by the Government of Hongkong on the one side and will effect the through communication between the colony and Canton, which is so much desired, and later when a line is constructed from the latter City to Hankow there will be established a direct Railway communication through the whole length of China with the Capital.

Last May we issued the Shanghai Hangchow Ningpo Railway Loan of £1,500,000 at 99. The Chinese Imperial Government is responsible for the construction of this Railway, but according to our information, two Provincial Companies, who have been in the field for some time, are constructing a Railway independently of the Government. The position of these Companies is peculiar; they are working under an Edict which ought not to have been issued, and which conflicts with the Edict under which our Loan was authorized, and some arrangement will have to be come to between the Government and the Companies. In round figures the approximate distance from Shanghai to Hangchow is 100 miles, and from Hangchow to Ningpo 120 miles. At the date of our information no work had been done between Hangchow and Ningpo, but between Shanghai and Hangchow all the earthwork and some of the Bridges had been completed, and Rails laid for 45 miles from Shanghai and 35 miles from Hangchow, leaving a gap of about 20 miles to be linked up. Workshops had been established and good progress made with the Stations, some of which were finished, and it was expected to open the whole Railway from Shanghai to Hangchow in the Spring. Trains were, however, already running on the 45 and 35-mile sections of completed permanent way from Shanghai to Hangchow, respectively. As I have stated, the Chinese have themselves undertaken the construction of this line and I cannot answer for the character of the work done.

The special Security for the Interest and amortization of this Loan is a First Charge on the Surplus Revenue of the Northern Railway which last year was no less than £375,000, and as the Northern Railway Bonds are being redeemed at the rate of £57,500 a year the security for the Ningpo Bonds should improve each year. The excellence of the security which practically makes the service of the Loan quite independent of the revenue of the Railway to be constructed with the Loan did not at first appear to be sufficiently realized.

The Bonds of all the Railway Loans are of course guaranteed by the Government.

The Loans which I have mentioned aggregate £8,200,000, and account for all the Contracts with which we started business, except two, viz., a joint Agreement between the Deutsche Asiatische Bank and the Corporation with the Chinese Government for the Tientsin Pukow Railway Loan and an Agreement between the Corporation and the Chinese Government for the Pukow to Sinyang Railway Loan. These Contracts were transferred by the Corporation to Chinese Central Railways, Limited, and they, in conjunction with the Deutsche Asiatische Bank, issued £3,000,000 on account of the Tientsin-Pukow Railway in March last.

As regards the benefit to the Shareholders of the Corporation from the various Loans issued, I find that including the distribution now recommended, the dividends average £10 7 per cent. per annum on the amount paid up on the Shares from time to time, and there are profits held in reserve equal to about £4 per share.

As to the future of the Corporation it is difficult at this moment to prognosticate. Recent events in China impress the Board as being favorable to progress and efforts at good government, but it is too early to form any definite opinion of the policy under the new régime. Railway building without foreign aid in construction may prove an expensive experience to the Chinese, in which case it would seem probable that in due course the Corporation's services may again be called for.

The immediate prospects are, however, not so favorable as we should like to see them, but our Representative is on the alert and no opportunity will be lost, and it should be borne in mind that the Corporation enjoys the great advantage of the Hongkong and Shanghai Bank's support and influence.

Before concluding I have to mention a matter personal to the Directors. The Corporation's business has involved the Board in an amount of time and trouble which was never contemplated, and the fees we receive do not amount to more than an honorarium. We hope, therefore, that this Meeting will see fit to increase the fees which are only £200 per Director, with £200 extra to the Chairman.

The Directors' remuneration having been increased to £500 per annum for the Chairman and £400 per annum for each of the other Directors, to date from July 1, 1907, the Report and Accounts (amended as regards the Directors' fees) were adopted, a Dividend of Fifteen Shillings per Share, and a Bonus of Five Shillings per Share declared, and the retiring Director (Sir David Barbour) and Auditors (Messrs. Broads, Paterson & Co.) re-elected. The proceedings terminated with a vote of thanks to the Chairman and Directors and to Mr. Bland, the Representative of the Corporation in China.

SOUTH CHINA MORNING POST.—The following was the report of the directors adopted at the general meeting of the company held in Hongkong, December 30th, 1908:

The Directors beg to submit their report for the year ending August 31st, 1908.

FAR EASTERN ENGINEERING, CONSTRUCTION, COMMERCIAL AND FINANCIAL NEWS

ELECTRIC RAILWAYS, LIGHT, POWER, TELEGRAPHS, TELEPHONES, AIRSHIPS, ETC.

PEKING-PAOTING TELEGRAPH.—The installation of this line is under way and will pass through Yuenging, Lianghsiang, Chochow, Kucheng Ngansuh, and Tsingyuen.

WIRELESS ACROSS THE PACIFIC.—Advices from San Francisco announce the receipt of a wireless message from Japan and that ineffectual efforts were made to respond. Further experiments are under way.

NIGHT SERVICE ON JAPANESE ELECTRIC RAILWAYS.—The Osaka Electric Tramway proposes to run night trains from midnight to four a. m. and it is not improbable that the Tokyo service will be extended similarly.

TAIREN ELECTRIC RAILWAY.—The Manchurian Railway has decided to add an electric tramway system to its many industries in Dalny. An electric light and telephone system have been installed and a gas plant is to be added under the direction of the railway as well.

OSAKA MUNICIPAL ELECTRIC RAILWAY.—This railway has been in operation since last August and the lines in all cover a distance of over eight miles. The total cost was about $2,000,600 and included the doubling of the harbor line for a distance of three miles. The fares charged range from 4 sen for an eighth section to 11 sen for the entire distance covered.

PACIFIC ISLANDS RADIO-TELEGRAPH CO.—This company has been organized by capitalists interested in the different groups of islands in the Pacific with a capital of $340,000 for the purpose of installing a wireless service connecting them with the two continents. It is proposed to install about 12 centrals each with a wide radius of activity and sufficiently extensive to include all the foreign possessions in the Pacific.

ELECTRIC INSTALLATIONS IN JAPAN.—The authorized capital of electric undertakings in 1903, 28,500,000 yen ($14,193,000), of which 24,000 000 yen ($11,952,000) was paid up, had risen to 138,000,000 yen ($68,724,000) in 1907, of which 87,500,000 yen ($43,575,000) was paid up. The electric works undertaken chiefly represented lighting and tramways. The number of lights supplied in 1903, 365,000, had increased in 1907 to 859,143. Tokyo and Osaka require each 100,000 lights. Electric tramways show equal development. In 1903 the mileage was 38, which rose to 119 in 1907.

RAILWAYS AND RAILWAY SUPPLIES

CANTON-HANKOW CONSTRUCTION.—Sir Liang Chang has made a report to the effect that 33 miles of the line is now open for traffic.

PENINSULAR RAILWAY.—The last spike was driven in the presence of Sir John Anderson and the Sultan of Johore at the Johore terminal Dec. 11.

INTERNATIONAL RAILWAY CONFERENCE.—Peking has appointed five commissioners to represent the country at the Railway Congress to be held in Belgium 1910.

HANCHOW NINGPO-RAILWAY.—The survey of the line between these two points have been under way for some time and it is expected that construction will not be further delayed.

SIANFU-TUNG KWAN RAILWAY.—The governor of Shensi has notified the Central Government that Shensi capitalists have subscribed Tls. 600,000 for the purpose of constructing this line.

ANTUNG-MUKDEN LINE RECONSTRUCTION.—Arrangements have been completed to begin the reconstruction of this line in the spring and it is proposed to open for traffic within a period of three years.

CANTON-HANKOW RAILWAY.—The Viceroy of Canton has recommended in a memorial to the throne that a foreign loan be negotiated to complete the line as he believes the project too great to be completed by native capital.

JAPANESE RAILWAY CONSTRUCTION.—The Chief of the Railway Bureau has announced that the year 1909 would see great activity on the construction of the Chiuo-Nishi, Gan Yetsu and the Toyama-Naoetsu railways.

CHEFOO-WEIHSIEN RAILWAY.—This line which will be 50 miles in length is to be undertaken next Spring if present prospects continue. The promoters are prominent Shantung merchants and only Chinese capital will be utilized.

JAPANESE RAILWAY TENDERS.—Tenders were opened December for the supply of 260 tons of steel "I" beams, for railway construction and the contract was awarded Messrs. F. H. Hunter & Co. of Yokohama whose price was yen 23,910 and the lowest bid offered.

PENANG HILL RAILWAY.—The government has authorized the expenditure of an additional $10,000 for the purpose of getting expert opinion on the advisability of reconstructing the line. Recent recommendations placed the estimates for reconstruction at $193,000.

CANTON-KOWLOON RAILWAY.—The report submitted at the 10th annual meeting of the British and Chinese Corporation by the Engineer-in-Chief states that the final working survey and estimates have been completed and the Chinese have been urged to push their section o completion.

LIAU-HO BRIDGE COMPLETED.—This bridge, which is located near Hsinmintun and below the old wooden bridge constructed by Japanese on their narrow gauge between that point and Mukden, is now open to traffic. It is built of steel and is one of the largest structures of its kind in Manchuria.

AUSTRALIAN CAR BUILDING WORKS.—The shops of this company, which were recently partially destroyed by fire, have been thoroughly remodeled and operations continue night and day with a large force to supply the New South Wales government with equipment for its railways. A tubular boiler of 225 h. p. has been installed.

KANAGAWA HACHIOJI RAILWAY.—This narrow gauge line 27 miles in length, which was opened for traffic on September 23rd, 1908, runs eight trains daily and is equipped with five American locomotives, nine passenger and twelve freight cars. An extension of this line to the shore of Tokyo Bay is being built and will be completed in the spring of 1909.

CHINESE RAILWAY FORESTRY.—To provide timber for future ties for the Railways of China, the Secretary of the Ministry of Posts and Communications has been instructed to inquire into the nature of the soil along the line of the Peking-Hankow, Taokow-Tsinghwa and Chengting-Taiyuen Railway with a view to planting trees on either side of the track to be used when grown for ties.

ANOTHER MONGOLIAN PROJECT.—The Russians propose securing permission from the Central Government at Peking to construct a railway connecting Maimai Cheng with the Trans-Siberian Railway for the purpose of developing Mongolian trade. The Imperial Agent at Urga has urged the government to anticipate the Russian enterprise by pushing the extensions of the Peking-Kalgan.

PEKING-KALGAN EXTENSION.—Upon the completion of this line, there is every prospect of an early extension of the line to Kweihwa from Kalgan and from there later to Yuen-yuen Ting on the border of Shansi and Mongolia and from the last named point on to Urga continuing to Kiakhta to connect with the Trans-Siberian Railway. The Board of Posts and Communications have been making arrangements for extensive surveys.

TIENTSIN-PUKOW CONSTRUCTION.—A report from Tsangchow from the *Peking and Tientsin Times'* correspondent is to the effect that construction work in that vicinity is being pushed rapidly and that the site of the depot has been selected at a point about one li from the East gate. At the time of writing the embankment, covering the section running six miles north and five miles south of the city, had been practically completed.

KILIN-CHANGCHUN CONVENTION.—The result of this convention places the direction of the engineering department and the accounting department of the proposed Kilin-Changchun and Hsinmuntun lines in the hands of Japanese chosen by the Chinese and approved by Japan. Japan loans yen 2,470,000 at 5% the Chinese bonds to be received at 93, redeemable in the case of the Hsinmintun-Mukden in 17 years and of the other line in 25 years. The roads and equipment are to be indicated as security for the loan.

CHINESE NATIONAL RAILWAY ASSOCIATION.—For the purpose of introducing a uniform system in railway administration in China, an association with headquarters at Shanghai has been approved by the Board of Posts and Communications and the Directors and sub-Directors of all railways, namely, Kiangsu Ksangsi, Anhui, Fohkien and Chekiang railways, and those of the Tientsin-Pukow, Peking-Kalgan, Peking-Hankow, Peking-Moukden, Kaifeng-Loyang, Shanghai-Nanking and Canton-Kowloon railways are to be members.

JAPANESE RAILWAY REORGANIZATION.—The new arrangement provides the following officials for the reorganized Railway Board of Japan. Governor at a salary of 6,000 *yen* annually; one vice-governor (4,000 *yen*); nine managing directors (3,000 *yen*); one chief engineer; sixty councillors; one private secretary; sixty-six *shuji*; forty assistant *shuji*; three hundred and thirty-two engineers; 5,281 secretaries and 2,795 mechanical engineers. Among the engineers 13 may be of *chokunin* rank. According to Tokyo newspapers the above organization involves the dismissal of three officers of *chokunin* rank, 50 of *sonin* rank, 600 of *hannin* rank, and 350 employees. Baron Goto is quoted as saying that the saving effected in salaries alone will be 250,000 *yen* a year, and that the total economies now in sight will aggregate half a million annually. He points out, however, that time will be needed to organize the new Board on a really satisfactory footing and to effect the necessary reforms.

PUBLIC WORKS, DOCKS, WHARVES, ETC.

HIROSHIMA STREET CONSTRUCTION.—This municipality is negotiating a loan of yen 160,000 for the purpose of opening up modern thoroughfares throughout the city.

YOKOHAMA DOCKS.—The new wet dock of this company was opened last month. It is 600 feet in length and 180 feet wide and will accommodate two steamers of 6,000 tons each and one of 3,000 tons at the same time.

WELLINGTON (N. Z.) PUBLIC WORKS.—The city council has arranged for a loan of £65,000 for the purpose of completing the Kilbirnie reclamation; the construction of workmen's homes and the establishing of recreation grounds.

PEKING WATER SUPPLY.—The Board of Agriculture, Industry and Commerce, under whose direction the waterworks were established in the Chinese capital, has made great progress in the laying of mains and pipes throughout the city.

MONGOLIA RECLAMATION WORK.—A loan from a Russian bank is being negotiated in the sum of Tls. 600,000 by the viceroy and governors of the Manchurian provinces for the purpose of reclamation in Mongolian territory.

MITSUBISHI FLOATING DOCK.—The first vessel docked on the new floating dock of this company was the Mishima Maru of 8,000 tons. The capacity of the dock is 12,000 tons and the work of construction was begun in June, 1907. The steel used was supplied by the Government Steel Foundry.

JAVA PUBLIC WORKS.—The Dutch government has made provision for the expenditure of 600,000 guilders in dredging the Tanjong Priok at Batavia for the enlarging and deepening of that harbor and plans and estimates have been prepared for the improvement of Samarang and Sourabaya.

YOKOHAMA WATERWORKS.—The payment of the loan arranged by the Finance Department for this work of yen 1,750,000 will be expended as follows: in 1909 *yen* 10,000 will be paid; in 1910 *yen* 20,000; in 1911 *yen* 30,000; in 1912 *yen* 60,000. The remaining amount will be paid within the next eight years.

HONOLULU NAVAL DOCKS.—The plan for the construction of an extensive system of docks at Pearl Harbor has been approved by the secretary of the navy. The fortification work estimates for Honolulu and Pearl Harbor will reach about half a million while the estimates for harbor work in the Hawaiian Islands will exceed one million.

QUARRY BAY DOCK.—Messrs. Butterfield & Swire have opened their new godowns at Kowloon Point which with the extensive wharfage modernly equipped with rapid handling apparatus, makes them very desirable for steamers on account of the room to berth alongside. The contract was carried out by Messrs. Howarth-Erskine & Co. The size of the new docks installed at Quarry Bay by this firm may be gathered from the fact that the huge steamer, the Minnesota, gets her first overhauling there.

SHIPBUILDING, GENERAL MARINE, AND FISHERIES

HONGKONG-AMERICAN LINE.—The Osaka Shosen Kaisha is arranging for an extensive steamship service connecting Hongkong and Seattle.

The first vessel will probably be scheduled for May.

KITANU-MARU.—This steamer, the last of four liners of 8,600 tons to be built by the Mitsu Bishi Dockyards, was announced to be launched on January 15th. These vessels were all built for the European run of the Nippon Yusen Kaisha.

PACIFIC-MANILA LINE.—The announcement is made that Mr. Robert Dollar, the well-known shipping magnate of the Pacific Slope, will arrange for a direct line of steamers connecting Pacific Slope ports with the Philippine Islands. The details of the enterprise have not been made known.

MESSAGERIES MARITIMES CONTRACT.—The recent convention with this company signed by the French government will provide for more rapid transportation between Marseilles and Indo-Chine. The agreement extends over a period of 25 years and by its provisions the French Government practically participates in the operation of the company.

JAPANESE-CHILIAN SERVICE.—The announcement was made last month that in addition to the three steamers put in the South American trade, January 1st, the Toyo Kisen Kaisha will increase that number to five before the end of 1909. The sum of yen 250,000 will represent the Japanese subsidy for this line and the government of Chili will increase that amount.

NEW PEARL FISHING COMPANY.—The Nawanagar Pearl Fisheries, Limited, with a capital of £200,000, has been registered in London and has for its purpose the acquiring of leases of premises of pearling grounds and other fishing privileges in the Gulf of Gutch and its coasts. The company will carry on a pearling and deep sea fishing business.

C. P. R. ENTERPRISE.—With the completion of the two steamers ordered by the C. P. R. for the North Atlantic traffic in 1910, it is announced that the Empress of Ireland and the Empress of Britain shall be transferred to the Pacific. The new vessels under construction on the Clyde will be larger than the old Empress steamers and will have a speed of over 20 knots an hour.

AUSTRALIAN-SHANGHAI SERVICE.—The arrival of the steamer Empire at Shanghai last month inaugurated a regular service between that port and Australia with a subsidy from the New South Wales and Victoria governments. The Eastern and the Aldenham, also of the Eastern and Australian Steamship Co. are on the same run. These vessels are equipped with refrigerating equipment and will be used for the transportation of meats, fruits and vegetables.

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THE FAKUMEN RAILWAY DISPUTE

(FROM OUR OWN CORRESPONDENT.)

Peking, January 6th, 1909.

Probably the one great issue of importance pending settlement between China and Japan is the principle involved in the Fakumen Railway dispute. This subject has received so much attention from the press that many conflicting ideas are held as to the issue at stake. An accurate presentation of the facts is vital to a thorough understanding of the situation, and may appropriately preface our comment.

Fakumen is a market town of 40,000 inhabitants on the border of Mongolia, situated 50 miles northeast of Hsinmufu, and 35 miles from the nearest point on the South Manchuria Railway. The Liao River is a natural traffic boundary flowing between the town and the Japanese Railway, which is navigable for junk traffic from Newchwang to a point 50 miles beyond Fakumen. Hsinmunfu is the Northern terminus of the Imperial Railways of North China, and is connected with Mukden by a line of 40 miles, built by the Japanese during the war, and acquired by China on April 15th, 1907, and who have since broadened the gauge and standardized it.

The success of the railways in other parts of the Empire, especially the Imperial Railways of North China, led the Chinese Government to consider the extension of the latter road northwards from Hsinmunfu to Fakumen, and thence eventually opening up Eastern Mongolia and terminating at Tsitsihar, the capital of Heilungkiang. A proposed road northwards, through Merguen to Aigun on the Amur, would complete a through trunk line to her frontiers, under Chinese control. A well-known British engineer surveyed the proposed road to Fakumen, and submitted his estimate.

During the latter part of 1907, the Viceroy of Manchuria, Hsu Shih Chung, and Governor Tang Shao Yi entered into two agreements for the construction of the road on the part of the Provincial Government, with Lord French of Paulings, Ld., of London, and J. O. P. Bland, representing the British and Chinese Corporation. Lord French, acting for Paulings, submitted a bid for the construction and equipment of the line, which was accepted, while J. O. P. Bland for the British and Chinese Corporation negotiated the loan for financing the work.

The road was to form part of the Imperial Railways of North China, under its administration and operation, and the contract stipulated that the work was to commence in three months and be completed within two years. The loan agreement and construction contract were the most economical and favorable to China ever entered into with foreigners.

The Japanese learned of the progress of these negotiations, and, before their conclusion, entered an emphatic protest, forbidding the Chinese Government from extending the Imperial Railways northwards from Hsinmunfu.

In December, 1905, an agreement was signed by China and Japan in Peking. In one of the secret clauses of this document, China binds herself not to construct, prior to the recovery by China of the South Manchuria Railway, any line in the neighborhood of, and parallel to, that railway, or any branch line which might be detrimental to the interests of the South Manchuria Railway.

Basing her action on the above agreement, Japan has up to the present firmly held to the position that the extension would seriously compete with the South Manchuria Road, and refused to withdraw her protest.

The above are the brief facts of the celebrated issue.

The arguments of both sides are illuminating and interesting. The representations and resolutions of the Newchwang Chamber of Commerce present the view point of the foreign interests allied with China as opposed to Japan.

Representations made and resolutions adopted by the Newchwang Chamber of Commerce.

1.—This line of the proposed Fakumen Railway, at its nearest point of convergence, is 35 miles distant from the South Manchuria Railway, and separated therefrom by the River Liao.

2.—The trade of Fakumen has always found its outlet through Hsinmintun, and thence, by way of the Imperial Railways of North China, to the seaboard at Newchwang, Chinwangtao, etc. It has never gone Eastward towards the districts operated by the South Manchuria Railway, and therefore there are no grounds for Japan's contention that the proposed line, which will cater only for the trade of these regions, must be competitive with, and detrimental to, the interests of the Japanese line.

3.—The proposed line has for its sole objective the development of that vast region of fertile country, holding boundless commercial potentialities, stretching West and North West of the river Liao, the reclamation and colonization of which has now for several years, and already with marked success, been fostered in every way by the paternal Government, and in this most beneficial scheme of development, the proposed railway is an absolutely essential and vital factor, as these regions being poor in natural facilities such as navigable water-ways, by no other means, excepting only the construction of branch lines westward from the South Manchuria Railway system, can this development be assisted and promoted. Such branch lines if constructed could not be as efficient and economical agents of this development as the direct line proposed, and would necessarily do incalculable injury to the prospects and trade of the port of Newchwang, which is the natural outlet and distributing base for the country in question, by directing from it to Dalny its legitimate trade.

4.—Assuming that Japan, as is alleged, obtained from China on a subsidiary treaty the undertaking

> "not to construct, prior to the recovery "by them (China) of the said (South "Manchuria) railway any line in the "neighborhood of, and parallel to, that "railway, or any branch line which might "be detrimental to the interests of the "South Manchuria Railway, etc.,"

the Committee of this Chamber submits:—

a.—That the country to be operated by the proposed line cannot be considered to be "in the neighborhood" of the South Manchuria Railway.

b.—That, as already demonstrated, it neither will, nor can be competitive with, or in any way detrimental to, the interests of the South Manchuria Railway.

c.—That in no country in the world, of similar population and topography, could, or would, the vested trade interests or sphere of an existing railway system be held to include so extensive an area, as to preclude the construction of other lines, even though competitive (if in the commercial sense that were possible), outside of a 35 mile limit.

d.—That Japan, having in Article 4 of Portsmouth Treaty pledged herself

> "not to obstruct any general measures, "common to all countries, which China "may take for the development of com-"merce and industry in Manchuria, etc.,"

her notice in exacting or receiving from China an undertaking such as is alleged, which is diametrically opposed in principle and practice to the pledge she has herself given to the World Powers, must be considered to have been *ultra vires*, and therefore the said undertaking by China to be null and void, and of no effect.

5.—If, however, we assume further the validity of the said undertaking by China, it still remains to be urged that such undertaking manifestly could not have application or reference to this territory westerly from the river Liao which, at the time of the recent Russo-Japanese war, was by China specifically proclaimed, and by the late belligerent Powers officially recognized, to be neutral territory, outside the area of hostilities, and therefore outside also of the political sphere of treaty negotiation or engagement wherein China's sovereign rights remained unquestioned and unimpaired. Obviously her intention in such undertaking could only have had reference to action within the area which furnished the

cause of the late war, and became the territory which formed the subject of treaty, and therefore such undertaking cannot constitute any bar or obstacle to the construction of the proposed Hsinmintun-Fakumen Railway.

On all these grounds, in the opinion of the Members of this Chamber, the attitude of Japan in relation to the proposed railway is as indefensible as it is directly opposed to the principle of "equal opportunity to all" and even a menace to "the integrity of China," and therefore the following Resolution has been unanimously adopted:—

RESOLUTION.

"The Newchwang General Chamber of Commerce being convinced that the extension of the Imperial Railways of North China from Hsinmintun to Fakumen and beyond is vitally important to the development and prosperity of Manchurian trade, strongly protests against the step now being taken by the Government of Japan to enforce the abandonment of this extension, Japan having specifically undertaken in the Treaty of Portsmouth, "Not to obstruct any general measure common to all countries which China may take for the development of commerce and industry in Manchuria."

The Japanese Government felt called on to answer this through the press, and defend her position as the following excerpts indicate:

"The Japanese Government, upon learning in August, 1907, that the negotiations were in progress, warned the Chinese Government it would be violating the self-denying engagement contained in the Protocol annexed to the Treaty of Peking of December, 1905.

"That warning was repeated in October and again in November but was unheeded. When in January of last year, the Japanese Government first learned of the conclusion of the contract, it only remained for them to lodge with the Government of China a formal protest against the execution of the work.

"The British Government to which a copy of the self-denying stipulation above quoted had been communicated early in 1906, did not question the validity of Japan's objections, but the Newchwang Chamber of Commerce on the 13th March last adopted the resolution referred to above.

"The Chairman of the Chamber in his letter, dated March 16, 1908, admitted that the construction of branch lines westward from the South Manchuria Railway system, would assist and promote development, but that such branch lines, by diverting the trade to Dairen, would necessarily injure the prospects and trade of Newchwang. Finally, in the commercial interest of 'Newchwang in particular' and of 'Manchuria generally,' he asked that a copy of his letter might be transmitted by the Consular Body to the Diplomatic Corps in Peking and he stated that 'the Committee of the Chamber regard the question of such vital and far reaching importance, that it intends by every means available to give publicity to the views expressed, and to that end purpose communicating the substance of these representations to the various Chambers of Commerce and kindred associations, and to the leading press of China, Europe, and America.'

"The Consular Body did not, for obvious reasons, transmit the letter to the Diplomatic Corps as requested, but the Committee of the Newchwang Chamber of Commerce evidently carried out its threat of appealing directly to the public against the action of Japan, since the Shanghai Chamber of Commerce has taken up the issue in the interest of Newchwang.

"The representations of the Newchwang Chamber are characterized by extravagant assertions and illogical conclusions that call for examination.

"It is inaccurate to say that the Liao-ho from Hsinmintun to Fakumen forms a natural traffic boundary or that the trade of Fakumen has never sought an outlet by means of the South Manchuria Railway. In those regions, the river is easily passable and, as a matter of fact, the existing line actually serves and has always served in the matter of transportation, the country to the west equally with that to the east of the river. Produce in large quantities is conveyed from the Fakumen regions to Tiehling in Chinese carts, and thence is carried southward by the existing railway system. Especially is this true of the winter when the rivers are frozen over and the whole land becomes one broad, smooth highway

"The site of the projected railway is in that portion of the valley of the Liao which is now served by the Japanese line and it may be assumed, without fear of contradiction, that the proposed line, if constructed, would draw away from the existing system some portion of its traffic. Sir A. Hosie, the British Commercial Attaché at Peking, in writing recently on the subject of the commercial situation in Manchuria, said:

"'It is true that the Imperial railway of North China are competing successfully with the Japanese line from Newchwang to Mukden.'

"If this be true under present conditions, it can not be doubted that with an extension of the Chinese line, there would be, at least, a corresponding extension of competition.

"Russia, at the time when she owned the South Manchurian Railway, clearly foresaw the danger from possible competition, and to safeguard her interests in that respect she inserted in the Convention with China of April 8th, 1902, a stipulation providing that in case, in future, an extension of the Shanhaikwan-Yiskow-Hsinminfun line or the construction of branch lines in the southern part of Manchuria, was to be undertaken, the matter should be previously arranged by an understanding between the Russian and Chinese Governments.

"This measure of reasonable precaution did not provoke any hostile criticism. The silence on the part of British subjects may, however, be explained by the fact that they were at the time practically excluded from railway exploitation in regions north of the Great Wall by the Anglo-Russian understanding of April 28, 1899.

"Japan, by Article VI of the Treaty of Portsmouth and Article I of the Treaty of Peking of 1905, was subrogated to all the rights, privileges and properties of Russia in the South Manchurian Railway. But desiring to have her rights placed beyond question, she obtained from China the engagement to which the Newchwang Chamber of Commerce now so seriously objects.

"If the engagement secured by Russia from Great Britain in 1899 and from China in 1892, were not unreasonable it is difficult to understand why Japan's engagement with China of 1905 should be condemned.

"Equally exaggerated and therefore equally demanding examination are the statements contained in the letter on the subject of the scope and value of the engagement (already quoted) contained in the Protocol annexed to the Peking Treaty of 1905.

"Answering these several statements in the order in which they were made it may be said

"Firstly.—The omission from paragraph (*a*), above quoted, of the words 'and parallel to' which were conjunctively used with the phrase 'in the neighborhood of' in China's engagement of 1905, may be taken as an admission on the part of the Committee of the Newchwang Chamber that the projected railway would parallel the existing line. The question whether it could be regarded in the same neighborhood depends upon many considerations of more importance than mere distance.

"Thus a railway, entering a valley, undivided by any impassable streams and already occupied and actually served in all its parts by another line, would, if running parallel with and at a distance of 30 or 40 miles from the original line and bidding for a share of its traffic, be clearly regarded as in the neighborhood of and detrimental to the established line. On the other hand, a railway, separated for instance from another by a mountain range, could not be considered as in the neighborhood of such other line, even if within 10 or 15 miles of it. Accordingly, objections to the contemplated line on the ground that it would be in the neighborhood of and parallel with the existing railway cannot in the circumstances of the case be said to be unreasonable. Manifestly a railway that is near enough to another line, to compete with it, must be regarded as in the same neighborhood.

"Secondly.—It should be pointed out that assertion is not demonstration. It was, it is true, asserted earlier under examination, that the proposed line would not be competitive with or detrimental to the existing railway. Not only was that assertion wholly unsupported, except by the inaccurate statement that no trade went eastward from the Fakumen region to districts operated by the existing system, but was contradicted by the suggestion as to the necessity of the new line in the commercial interest of Newchwang. The assertion is moreover irreconcilable with the statement of Sir A. Hosie, which has already been quoted.

"Thirdly.—To say that in no country in the world could the vested interests of a railway preclude the construction of another line within a distance of 35 miles is to say more than can be substantiated. Even in China, at least one instance in direct contradiction of that statement actually exists. In 1898, the Russo-Chinese Bank entered into a contract with the Chinese Authorities concerning the construction of the Chengting-Taiyuan Railway. Article 5 of that contract reads as follows:

"'During the whole 30 years or while the loan is unredeemed, the high authorities of Shansi shall, at the request of the Company, interdict the construction of another railway or other mechanical means of transport between Liuliu (Chengting) and Taiyuan, as such would be detrimental to the interest of this Railway.'

"Later in the same year, the Peking Syndicate signed an Agreement with the Shansi Bureau of Trade for mining purposes, iron works and transporting mine products of all kinds in the Province of Shansi. Having regard to the engagement above quoted, it was provided in Article 17 of the Peking Syndicate Agreement—

> "'With reference to the Chenting to Taiyuan Railway for the construction of which the Bureau has borrowed capital from others, the Peking Syndicate, to avoid dispute, shall not construct any railway within 10 Li on each side of it.'

"Aside from this concrete case it may be pointed out that in a country where for centuries produce in large quantities has been transported over long distances by men and beasts, 35 miles is certainly well within the radius of competition for lines of railway.

"But, it should be added, the distance between the existing and proposed lines is, in fact, considerably less than 33 miles, from Hsinmintun to Mukden is 32 3-10 miles; from Fakumen to Tiehling, 27 2-10 miles and from Shintaitzu on the South Manchurian line to the nearest point on the proposed line is only 24 8-10 miles.

"Fourthly.—The pronouncement that the Peking Agreement of 1905 was violative of Article 4 of the Treaty of Portsmouth and opposed to the pledge given by Japan to the Powers, is a statement that the Newchwang Chamber of Commerce was not competent to make, and one which that body would never have made, if it had given due consideration of the question. The Treaty of Portsmouth was between Japan and Russia, and if Japan has concluded engagements with other Powers, inconsistent with that Act, it is for Russia to call her to account. The Peking Agreement was concluded with China and the Chinese Plenipotentiaries had the Treaty of Portsmouth before them when negotiating that Agreement. Accordingly, it may be assumed that China no less than Japan considered that Agreement as entirely reconcilable with the Portsmouth Compact. The only pledge that Japan has given to the Powers is the pledge regarding the open door in China, which has equally been given by the other powers, America, Germany, France, Great Britain and Russia. Those Powers have all been parties to, or have supported in favor of their subjects and citizens, railway concessions in China, in which appear stipulations similar to and equally comprehensive with the provisions of the Peking Agreement above mentioned. Thus in the Agreement with the American China Develop-

ment Company of July 13, 1900, for the construction of the Hankow-Canton railway line, it was provided—

"That without the express consent in writing of the Director General and the American Company, no other rival railway detrimental to the business of the same is to be permitted, and no parallel roads to the Canton-Hankow line are to be allowed to the injury of the latter's interest, within the area served by the Canton-Hankow main line or branch lines.

"In the Agreement of July 9, 1903, with the British and Chinese Corporation, Limited, for the construction of the Shanghai-Nanking line, the same stipulation, mutatis mutandis, appears.

"The Canton-Kowloon Railway Agreement of March, 1907, between the Wai-wupu and the British and Chinese Corporation, Limited, contains the following:

" 'It is further understood that the Chinese Government will not build another line competing with this railway to its detriment.'

"We have already seen the Russo-Chinese Agreements regarding the Shanhaikuan-Yinkow-Hsinmintun and the Chengting-Taiyuan lines, as well as the Anglo-Chinese Shansi engagement, and it will be sufficient, in concluding this branch of the question to call attention to the fact that Germany, in virtue of her Kiaochow engagements with China, claims the exclusive right of railway exploitation in the Tientsin-Chinkiang Railway because in part a British and in part a German undertaking.

"The last point in the letter of the Chairman of the Newchwang Chamber of Commerce, which requires examination, is the statement that the territory to the west of the Liao Ho was, during the Russo-Japanese War, specifically proclaimed by China and officially recognized by the belligerents to be neutral territory, and consequently even if it be assumed that the undertaking in question was valid, that undertaking could only have had application to the territory which was within the area of hostilities and which furnished the cause of the war and was the subject of the Treaty.

"In making that statement the author of the letter, in his partisan zeal in defense of the interests of Newchwang, forgot his history as well as his geography.

"The region through which the projected line was to run is in Manchuria, and was as much the cause of the war and the subject of treaty adjustment as any other portion of the three provinces. Hsinmintun and Fakumen were opened by the Peking Treaty of 1905 and the Hsinmintun-Mukden line was one of the questions disposed of by that Treaty.

"China specifically proclaimed that her neutrality extended to those localities unoccupied by belligerent troops. The region in question was throughout the war so occupied by one or the other of the belligerents.

"Japan officially recognized as neutral Chinese territory not occupied by Russia.

"Russia officially declared the following area to be outside the neutral territory:

"A portion of the region situated on the right bank of the Liao Ho, the boundaries of which are formed by the Liao Ho and by the railway line Yinkow-Kaopantze; afterwards by the railway line to a point where this line crosses an affluent of the Liao Ho, the Liou Ho (a little south of Hsinmintun), and finally by the said affluent, the Liou Ho, as far as the frontier of Mongolia.

"On the ground, therefore, of historical precedents no less than reasonable precaution, the action of the Japanese Government in interposing a veto against the construction of the projected line, cannot in justice be condemned.

"The Newchwang Chamber of Commerce, as is seen from its resolution, places great reliance on Article IV of the Treaty of Portsmouth. Accordingly, it may be explained that a measure which is injurious to one Power cannot fairly be regarded as a general measure 'common to all countries.' "

After the publication of the above Japanese argument defending her position, which reflected somewhat on Chinese diplomacy, there was issued from Peking another lengthy rejoinder to Japan, which was probably the first time that the Chinese government has ever attempted to court newspaper publicity. This document in answer stated:—

"The important questions raised in the Resolutions adopted by the Newchwang Chamber of Commerce on March 13, are confused by side issues and irrelevant facts.

"Its most significant feature lies in the fact that the position assumed by Japan based on ante-bellum precedents, implying recognition of that very 'sphere of influence' policy which it was the avowed object of the Anglo-Japanese alliance to replace by 'the independence and territorial integrity of the Empire of China and equal opportunities therein for the commerce and industry of all nations.' That the Japanese Government should now permit the justification of the position assumed in regard to the Fakumen line by reference to the position occupied by Germany in Shantung, is somewhat disturbing.

"The Japanese Government, however, goes further, and, claiming the reversion of all the 'rights and privileges' heretofore owned by Russia in the South Manchuria Railway, proceeds to quote the Russian Manchurian Convention of April, 1902. Ignoring the important fact that Russian diplomacy was herein chiefly concerned with the restriction of British influence in general and the extension of an important British enterprise in particular, we have the mis-statement of one important fact followed by the suppression of another. The Japanese Government is well aware, in the first place, that the self-denying undertaking imposed upon British subjects in regard to railway exploitation in regions beyond the Great Wall was a direct consequence of the 'spheres of influence' régime at that time predominant; and, in the second place, that Russia on her side undertook (which Japan has never done or been asked to do) to abstain from all competition with British railway enterprises in the Yangtze valley.

"Nevertheless, the Japanese Government is unable specifically to deny that the supplementary clause of the Peking Agreement of December 1905 (upon which rests the veto which restricts China from extending her railway into North-western Manchuria) does in fact violate a plain declaration of the Treaty of Portsmouth. On this important point the argument adduced in the Memorandum under review is illuminating. It reads as follows: 'If Japan has concluded arrangements with other Powers inconsistent with that Act, it is for Russia to call her to account.' "

Moreover, it continues:

"The Peking Agreement was concluded with China, and the Chinese plenipotentiaries had the Treaty of Portsmouth before them when negotiating that Agreement, from which premises is deduced the ingenious but entirely gratuitous conclusion that 'China, no less than Japan, considered that Agreement as entirely reconcilable with the Portsmouth compact.' Here we come to the crux of the matter. It is precisely because the Chinese Plenipotentiaries were assured during these negotiations that the supplementary clause upon which Baron Komura insisted would naturally and necessarily be interpreted in the light of the Portsmouth Treaty (which guarantees to China the unrestricted development of her Manchurian territories) that they now take exception to the restrictive interpretation which the Japanese Government is placing upon that clause. This point is made unmistakably clear in the dispatch which the Chinese Government addressed to the Japanese Minister at Peking on May 6 last, from which the following extract is translated:—

" 'In referring to the Conference negotiations and stating that China is now disregarding her Treaty engagements by taking action prejudicial to the interests of the South Manchuria Railway, Your Excellency is apparently unaware of the fact that at the time this Agreement was concluded between the Japanese and Chinese Plenipotentiaries, the latter maintained that the word 'parallel' was too comprehensive and that the agreement should state definitely in miles the distance within which no parallel line should be built. To this request the Japanese Plenipotentiaries replied that if the number of miles were fixed, it might create the impression in other countries that Japan intended to restrict Chinese railway enterprise. They were subsequently asked to agree that the distance should be understood to be such as would be usual in England or America, but objected to this proposal on the ground that no general rule exists on the subject. Moreover, the Japanese Plenipotentiaries declared that under no circumstances would Japan do anything to restrict China in future from any steps she might desire to take for the extension of means of communication in Manchuria. These declarations were made in all sincerity and at a time when the most friendly relations existed between the two countries, and should therefore be observed by both parties.'

"Reserving for further consideration the technical grounds upon which the Japanese Government bases its objections to the Fakumen line as a competitor with the S. M. Railway, it is pertinent here to recapitulate the avowed objects of the Anglo-Japanese Alliance. They are thus fittingly described by the Japanese author above quoted (Professor Asakawa):

" 'The alliance exists solely for the purpose of safeguarding effectively the interests already acquired by the two Powers on the common ground, and it is implied, in an unmistakable manner, that those interests may best be maintained by the total abstention, in any event, from all aggressive or exclusive tendencies in China and Korea, and, what is equally important, that the observation of these principles would forcibly tend to preserve the general peace in the Far East. Owing to the covert violation of these principles by another Power, however, peace has been broken, but the Anglo-Japanese agreement has not expired. The latter would, however, fall to the ground, the moment one of the parties, either as a result of a war or otherwise, should attempt to depart from the principles of the open door and the territorial integrity of the neighboring Empires.'

"It can scarcely be seriously believed in Tokio that the veto imposed by the Japanese Government in regard to the Fakumen Railway is regarded by any intelligent person as consistent with a policy 'intended to safeguard effectively the interests already acquired by the two Powers on the common ground.'

"Equally inadmissible is the Japanese Government's contention that 'the policy of the open door does not prevent Railway exploitation.' Here, again, everything depends on the meaning of the terms used; but there can be no question that the exclusive privileges claimed by Japan in connexion with her ownership of the S. M. Railway are a complete repudiation of the open door policy. Railways may be, and are, built on Chinese territory as financial and industrial enterprises in which foreign powers are interested, and this without violation of the open door, so long as the enterprises in question are for the benefit of, and under the direction of, the Imperial Chinese Government, affording equal commercial opportunities to all comers; but it were futile to assert that the doctrine of equal opportunities is compatible with such privileges and such control as Japan is now endeavoring to exercise over Manchuria by virtue of her acquisition of the S. M. Railway. If proof of this statement be needed by those unacquainted with the situation, it is to be found in the fact that the Municipal Regulations recently promulgated in the name of the Russian Railway authorities at Harbin, regulations which ignored the Treaty rights of the subjects of all other Powers, received the diplomatic approval and support of the Japanese Government on the understanding that similar conditions would be recognized by Russia as applicable to the Japanese Railway Settlements in Southern Manchuria! It is useless to deny the fact that the Southern Manchuria Railway, won by Japan's victorious arms, is an instrument in the hands of the Japanese Government for the promotion of exclusive Japanese interests; the situation is sufficiently recognized, diplomatic conventions notwithstanding, by the Powers, and the forces of 'geographical gravitation' which must inevitably tend to the advancement of Japan's interests to the east of the Liao river are generally understood. But the question which is raised by the Fakumen

railway scheme is whether, and how far, those forces of 'geographical gravitation' are to be extended westwards, to the serious prejudice of vested British interests in that region, the detriment of international commerce and the limitation of China's sovereignty. In the Hsinmintun-Mukden Railway Agreement (May 1907) Japan herself recognizes the Liao River as the natural limit, beyond which her claims to special and exclusive privileges cannot properly be advanced.

"In view of the essential and wider aspects of this question, it is almost superfluous to examine the technical reasons and economic precedents whereby the Japanese Government seeks to justify its veto of a 'parallel' line. Nevertheless, as great stress has been laid upon the existence of a similar restrictive clause in the railway agreements made with China by other nationalities, and as the argument may appear forcible to the uninitiated, it is expedient to explain its inapplicability. The agreements to which the Japanese Government particularly refers, viz.: the American contract for the Hankow-Canton Railway, and the British contract for the line from Canton to Kowloon, were purely financial and industrial agreements made between the Chinese Government and private companies for the construction of Chinese Government railways under Chinese control; and the lines being mortgaged as first security for the repayment of the necessary loan, the inclusion of the restrictive condition in regard to parallel lines was obviously beneficial to all concerned since it facilitated the raising of capital abroad.

"Nevertheless, as the history of railway construction in China clearly proves, this condition was never intended to be (nor could it be) arbitrarily interpreted by the representatives of the foreign bondholders to restrict the Chinese Government from constructing other railways parallel to these lines, the evident and only intention of the condition being to reassure investors that the Chinese Government would not (presumably at the instance of another Power) do anything to injure property which is mortgaged for security of foreign loans. No such argument can, however, be applicable in the case of the South Manchuria Railway, which is not a Chinese railway, for which China has incurred no liabilities and in which she is not even financially interested.

"Finally, referring to the Newchwang Chamber's contention that 'in no country in the world could the vested interests of a railway preclude the construction of another line within a distance of thirty-five miles,' the Japanese Government cites what it alleges to be 'at least one instance in direct contradiction of the statement,' and thereupon proceeds to quote the engagement given in the Peking Syndicate's Shansi agreement whereby, to avoid undesirable competition with the Chengting-Tai-yuen railway, the syndicate undertook not to construct any railway within 100 *li* on either side of it. We can only presume that the Tokio authorities are unaware that 100 *li* are, for practical purposes, the equivalent of thirty-five miles; it is inconceivable that, if they were informed of the fact, they should cite, as argument on the Japanese side of the case, a precedent which completely justifies the construction of the Fakumen railway. The proceeding is disingenious; but hardly less so the citation of the Russian Bank's agreement (Art. V, Chengting-Taiyuan Railway contract) whereby China was bound not to permit the construction of two parallel railways between the same two terminal points.

"These, however, are side-issues, which serve merely to detract attention from essentials. If the question be considered simply in the light of Japan's definite and undeniable obligation to recognize and maintain China's unimpaired sovereignty in Manchuria, and to promote the development of China's commerce and industries in that region, then assuredly (and because the greater includes the less) the Peking agreement of 1905 and its supplementary clauses must be interpreted in the light of the declared principles and objects of the Anglo-Japanese Alliance. For, if otherwise interpreted, it is evident that the Japanese Government has failed to observe that clause of the Treaty of Alliance which, having for its object the mutual protection of the established interests of both powers, provides that 'neither of the Contracting Parties will, without consultation with the other, enter into separate arrangements with another Power to the prejudice of the interests described in the agreement.' "

And here the matter rests at present. Negotiations are in progress at Peking, and it is understood that the new Japanese ministry is disposed to recede from the stand taken, owing to the bitter storm of protest which has arisen in Great Britain and elsewhere. A favorable solution to the question is vital to China's future, and the development of Manchuria, for if Japanese prohibition holds, it effectively checks the exploitation of the country west of the Liao, and Eastern Mongolia, and precludes the building of trunk line northwards to Tsitsihar. On the other hand, the construction of such a line, while not materially affecting the commercial value of the South Manchuria Railway, from a stategic point of view, must always be a menace to Japan in Manchuria.

We believe, however, that the Japanese contention in regard to the serious competition of the extension with their line, is not of great weight, for Manchuria is vast enough, and her resources so many, that there will soon be room for two or three trunk lines from north to south.

If politics were eliminated from the situation, and everybody settled down to real earnest effort to develop the country and resources, the South Manchuria Railway could never begin to handle the freight even by double tracking its line. There is room for a Chinese railway to Tsitsihar, though it may be some time before it would pay, but eventually, under proper management, such a road would also reap a rich harvest through the settlement of the waste lands, the growth of cities and the increase of crops.

It is to be earnestly hoped that a settlement of the question will soon be reached.

JAPANESE IN MANCHURIA

(BY OUR CORRESPONDENT.)

Mukden, Dec. 20th, 1908.

As a natural result of the war many Japanese found their way into Manchuria and remained there to exploit the country: with the armies came the camp followers, adventurers, petty merchants, geisha and prostitutes, discharged soldiers returned to the promised land, and brought their families. The railway employed thousands, while others set up as small traders, and strove to wrest a profitable living from the hardy Manchus. To the victors belong the spoils, and the average Japanese adventurers acted on the old adage. If a house looked good to him he occupied it, if the native did not show the proper respect due the victor, he was pummelled and put through a course of jiujitsu. For a long time the adventurer held his way, and the Government apparently had no control over his actions. The past actions of the independent Japanese in their dealing with the natives have caused much of the ill feeling existing to-day between the two governments. While to-day there is still some aggressive spirits in Manchuria, it may be stated, however, that the Japanese Government has succeeded in eliminating most of the disturbing element, by sending them home or to Korea.

While the Japanese Government must necessarily shoulder the blame for the actions of their nationals, the situation is one most difficult to handle and there are extenuating circumstances which relieve the Government from censure.

Adventurers and the rough lawless element invariably follow a victorious army, and operate under the protection of the flag. The vanquished or the peaceable inhabitants of the country are at their mercy, and few escape the depredations of the victor. This class is a serious menace in any land, and even amongst the more advanced nations, strict laws have to be enforced to keep them in check. For the prejudiced critic, however, the Japanese in Manchuria have no redeeming qualities, but to the fair-minded observer, the situation there finds many parallels in recent history.

In the Philippines, the American camp follower, and others of his kind, imposed on the native, viewed the country as his by right of conquest, and committed many depredations under cover of the unsettled state of affairs. As in Manchuria, these actions reflected on the Government and Americans as a nation, and strenuous measures had to be finally adopted to rid the islands of the undesirable element. In Cuba, as in the Philippines, there are still disputes with the Government, as to the ownership of lands and houses occupied by the military, which are being amicably adjusted, the railway had an immense claim for the confiscation of their property, and was settled by a compromise after several years.

And the same situation exists in Manchuria, only to a greater extent. The Japanese Government had little control over Japan's adventurous sons who swarmed over Manchuria, but gradually they have been caught up with and the worst element deported. Many left of their own accord, finding that their get-rich-quick dreams would never be fulfilled in a land where the native could live on less and be content with less than the hardy Japanese. So today the situation is much improved, and as time goes on this evil will be eradicated.

The Japanese may have been overbearing and lawless, but they have had no monopoly. The Russians were worse, and if conditions in Harbin are any criticism, they are hard to beat.

The Chinese complain that in the city of Liaoyang the South Manchuria Railway officials have recently been making incursions into the mercantile business. They have established there what they designate as "Railway Stores," nominally for the purpose of supplying the railway staff with necessary merchandise, but really, it is charged, for the purposes of general trade. It is charged by the local merchants that the directors of the railway are privy to the scheme, and that similar stores are to be opened at other cities along the line.

It is obvious that such a scheme might be susceptible to grave abuses, inasmuch as so-called railway employees can buy at these stores any quantity of goods and resell them to small retailers at prices with which the ordinary tradesmen can not compete. This process, they point out, will be the more feasible inasmuch as railway stores and supplies can be imported free of duty by way of Port Arthur. There is no Chinese Custom House at Port Arthur and great quantities of such railway "supplies" are said to be entering by that port entirely free of duty.

The merchants of Liaoyang have held meetings at which concerted action has been taken, and a strong protest will be forwarded direct to the railway's board of directors.

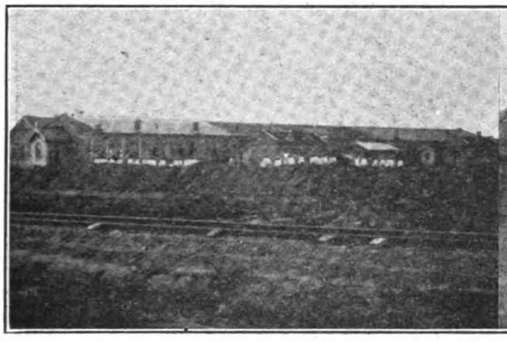
Here we have a repetition of the old complaint of the Manila retail merchants against the Commissary Stores of the Army and Civil Government. These stores supply goods of every description to those connected with the Army or the Civil Government, at practically cost prices. They pay no duty, and as the Government purchases in immense quantities they receive the lowest prices. In Manila, the favored ones can purchase supplies at the stores for one-half or two-thirds under the price of the retail merchant. Of course the system is open to abuse but if honestly conducted there is little to be feared.

The protest of the Chinese will receive little consideration, as the Railway Company, or in other words the Japanese Government, has the right to sell stores to its soldiers at cost duty free, the same as other nations. It is too early to charge underhand action, until proofs are forthcoming. This circumstance indicates the situation in Manchuria, every move of Japan is viewed with suspicion, and behind any new undertaking there must always be some ulterior motive according to the Chinese.

The Chinese further claim that during the military occupation of Mukden a considerable number of Japanese immigrants, or fortune seekers, estimated at 5,000, swarmed into the city and established themselves wherever they could find shelter. Following the examply of the military, these fortune seekers and pette merchants looked about and, having found

CENTRAL MANCHURIA

Trade Conditions.—The cities of Changchun and Kirin, the two principal centers of trade in central Manchuria, were opened to international residence and commerce on January 14, 1907. Petuna and Ninguta, important commercial points more or less dependent upon the former two, are also to be opened. The markets of Central Manchuria have thus far remained largely undeveloped, due to the fact that, until the close of the recent war, it was so far removed from the nearest points at which foreign firms were permitted to locate, that it was impossible to acquire a clear knowledge of conditions affecting the market, or to exercise personal control over the distribution of their goods. The introduction of foreign articles was entirely in the hands of a few Chinese *hongs* at Changchun and Kirin, which imported from Newchwang and Vladivostok, and who conducted business in accordance with old conservative methods. Content with the small returns from their established trade, they felt little inducement for attempting the introduction of goods unknown to their buyers the successful disposition of which might be impossible.



BARRACKS AT MUKDEN

OFFICERS' QUARTERS AT MUKDEN

MUKDEN HOSPITAL

The presence of the Russians occasioned some increase in the importation of foreign goods, but they made no effort to undertake the systematic and vigorous commercial campaign necessary to build up a market, and their influence on the trade of the region was relatively small.

Now, however, that the two emporia of Central Manchuria have been opened to foreign residence and trade and an effective commercial exploitation of this territory has become possible, it should form an important addition to the large and growing market for foreign goods in north China.

Population.—The population of Central Manchuria is about 3,000,000 and is gradually increasing through immigration from southern parts of the Empire. The number of people per square mile is smaller than almost anywhere else in China, and their standard of living, owing to their less crowded condition, is therefore comparatively high. The inhabitants belong almost entirely to the agricultural class, the urban element probably does not exceed 15 per cent.

Natural Resources.—A territory to be a good purchaser must be a good producer, a condition which Central Manchuria seems largely to meet. It is rich in agricultural, mineral, forestal, and animal resources. The valley of the Sungari running through it from south to north has often been called "the storehouse of the Three Eastern Provinces."

Agricultural.—The principal wealth of this region is agricultural. Its possible productive capacity, however, is yet far from having been reached, inasmuch as scarcely more than half of the arable land is at present under cultivation. In 1901 the Government, anxious to secure the development of the large tracts of fertile soil lying idle, undertook a scheme of colonization. A bureau was established to superintend the surveying of the land, its division into suitable farming plots, and its allotment to applicants; and the most favorable inducements to move to this region and engage in agriculture were offered to people living in the over-thickly inhabited parts of the Empire. This movement had but gained a fair headway when the Russo-Japanese war broke out and it had to be suspended. It is stated, however, that it will before long be resumed; and the productiveness of central Manchuria will in time show a considerable increase.

The most important products of this region are wheat, hemp, a species of indigo, opium and tobacco, for the first three of which it is the principal center of production in Manchuria. The tobacco grown there is superior in quality to that cultivated in other parts. Hemp ranks second and tobacco third, as regards bulk, among the articles of trade of Manchuria. While beans, which together with their manufactured products, oil and fertilizer (bean-cake), constitute the chief export of Manchuria, are grown principally in the southern part, yet the region dependent upon Changchun city enjoys a very profitable share of the entire output and Kirin is also the point of collection for considerable quantities of these articles. *Kaoliang*, a sorghum millet which forms the staple foodstuff of the natives, as well as barley, maize, and rice are also cultivated in large quantities.

Shaochiu, a native spirit, is extensively distilled from millet; and native wheat flour, which at present supplies almost the entire demand for that article in Central Manchuria, is ground in small horse-power mills.

Forestal.—The valley of the Sungari contains large and valuable forests of red pine, fir, larch, walnut, oak, and elm, which belong to the Government but are worked at liberty by private persons upon the payment of a small tax. The Russians received permission from the Chinese authorities during the construction of the China Eastern Railway to fell sufficient timber for the necessary sleepers; and despite the protests of the local officials they have continued since the completion of the line to prosecute the enterprise for commercial purposes and are at present negotiating for a monopoly of the timber industry of the valley of the Sungari.

The timber felled is used for various purposes, principally the construction of the two-wheeled carts and junks which form the chief means of transportation in Manchuria, of coffins, one of the important exports of the city of Kirin, and of articles of furniture and household utensils. A considerable amount has also lately been employed for sleepers intended for the proposed Changchun-Kirin Railway.

Wild ginseng, a leading export of Central Manchuria, is found in profitable quantities in the forests of the Sungari.

CHINESE COMMERCIAL MUSEUM, MUKDEN

JAPANESE OFFICIAL BUILDING, MUKDEN

JAPANESE COMMERCIAL BUILDING, MUKDEN

Mineral.—While it is impossible to make an exact statement regarding the mineral resources of Central Manchuria, they are believed to be of considerable extent and value. Their development has thus far been seriously retarded by the lack of transportation facilities, the danger of Chinese and Russian bandits, and the ineffectiveness of the methods employed.

carried on quite extensively in Central Manchuria and both live and dead stock are exported to the province of Shengking.

Centers and Routes of Trade.—Central Manchuria, as other parts, is traversed by a number of regular highways which link together the important towns and at present constitute the principal channels of trade. The cart-borne

opening of the river are shipped by junk to that port.

While the foregoing describes the general course which the larger part of the trade of Central Manchuria at present follows, considerable cart traffic is also carried on directly between the smaller marts and Newchwang as well as intermediate points, a more or less

ENTRANCE TO MINT AT MUKDEN MUKDEN MISSIONARY HOSPITAL PAVILION IN NEW PUBLIC PARK, MUKDEN

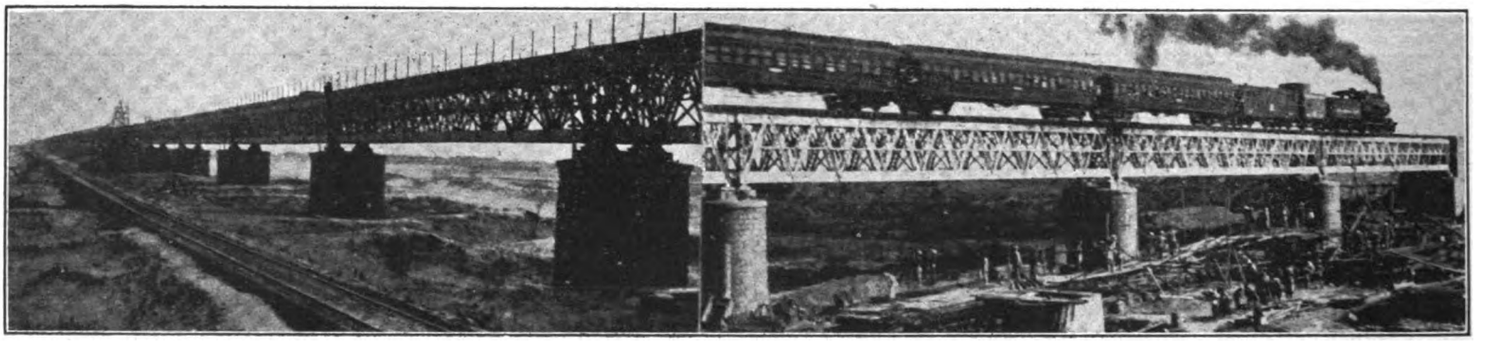
The kinds of minerals up to the present discovered in paying quantities are gold, silver, lead, copper, and coal. Coal exists in large amounts, some mines being operated by Russians near Changchun and others by the Chinese in the vicinity of Kirin, and the ready availability of this fuel should give an increased stimulus to the railway construction and manufacturing and industrial enterprises which are sure to be concurrent with the development of this region. Most of the mineral deposits are at present operated by private Chinese companies and a number by the government, while some are worked by officials and merchants in conjunction. There is no doubt that this, as other parts of Manchuria, will, as soon as the Chinese mining regulations have been revised and freed from their present restrictions, offer very favor-

traffic, though largely confined to the winter season when the roads are frozen and easily traversible, still considerably exceeds that carried either by river or by rail. While the marts of this region carry on a more or less extensive business with Vladivostok and Dalny, by far the larger part of their trade is as yet done with Newchwang. The latter port is connected with Central Manchuria by a main road running to Kirin, whence it bifurcates to the northwest and the northeast, extending in the former direction through Petuna and Tsitsihar into the northern extremities of the province of Heilungchiang, and in the latter to Ninguta and places to the south thereof, in both cases with branches to the other important towns.

General Course of Trade.—During the period

extensive trade takes place over the winter highways with Harbin and Vladivostok, and fair amounts of goods are transported by rail to and from Dalny, Vladivostok, and Newchwang.

Railway Communication.—The South Manchurian Railway, extending from Dalny and Newchwang to Changchun, and the China Eastern Railway from Changchun to Harbin, where it unites with the Chinese Eastern main line passing east and west across the provinces of Heilungchiang and Kirin with its seaboard terminus at Vladivostok, furnish a system of rapid transit which, with a few more extensions, will provide easy access to all parts of the country. The construction of a line from Changchun to Kirin is at present under survey and will probably be realized within another two years, thus



TWO VIEWS OF THE NEW STEEL BRIDGE OVER THE HUN-HO, NEAR MUKDEN, ON THE SOUTH MANCHURIA RAILWAY

able opportunities for the investment of foreign capital. (See List of Mines.)

Animals.—Another important class of products of Central Manchuria consists of skins of both domestic and wild animals. Tigers and leopards are fairly numerous in the valley of the Sungari and their furs command high prices. The bones of the tiger and the young horns of the deer, both of which form an indispensable and greatly prized part of the Chinese pharmacopeia, are also important articles of trade of this region. Pig's bristles and horse hair are exported from both Changchun and Kirin. Owing to the large tracts of land available for pasturage, stock raising is

from November to March successive caravans of two-wheeled carts laden with local produce stream over these highways from all parts of the country into Changchun and Kirin, the two great emporia of Central Manchuria, and return thence with cargoes of flour, cottons, and other articles. From these two cities the native goods are in turn transported in the same manner to Newchwang, whence the carts come back loaded with quantities of imported wares. As spring approaches and the roads begin to thaw, the carts, instead of completing the journey to Newchwang, proceed to Tungchiangtze, the head of navigation on the Liao, or sometimes to points further south, whence the goods on the

greatly stimulating the development of the rich valley of the upper Sungari. Furthermore, the extension of the Tientsin-Newchwang-Hsinmintun line by the Chinese, a plan whose undertaking as far as Fakumen is now a subject of discussion, to some point in Central Manchuria, as well as the construction of the proposed Tsitsihar-Aigun line, would help more adequately to meet the requirements of a region the extent of whose increasing resources permits of the profitable operation of more than one railway system and would create the healthy competition necessary to the maintenance of satisfactory service and moderate rates of transportation.

Competition between Railway and Cart.—Until the recent re-equipment of the So. Manchuria Ry. in shipping goods from Newchwang to Changchun, during the winter season, not only was cart transportation considerably cheaper and, on account of the less frequent necessity for re-loading the cargo, attended in the case of some goods by a smaller amount of damage, but, surprising as it may seem, it was in many cases just as rapid as, and sometimes even more so than, the railway, owing to the long delays caused on the latter through an insufficiency of cars with the result that the greater part of the traffic between those two points was carried on by cart. These conditions have ceased to exist, since the Railway has placed in operation the new rolling stock secured in America. The trade between Changchun and Dalny, which is rapidly increasing, is entirely by rail; while the business of Kirin, at present largely limited to Newchwang, is carried on almost wholly by cart over the highway between those two cities already described.

Outside the winter season, and especially during the months of July and August when the rains render the roads impassable, the railway, free from the competition of such a water-course as the Liao River forms in the province of Shengking, will necessarily handle the large part of the traffic occurring between Central Manchuria and the southern ports during that period.

In view of the great number of carts and animals in the province it is possible that the farmers, in view of the short time intervening between the harvesting of most of their crops and the cold season, will find it more profitable to postpone their exportation until the freezing of the roads render easy cart transportation possible than to commence immediate shipment by railway, and the merchants will also find it to their interest to import by cart during the winter the larger part of their stocks. The fact must also be borne in mind that, although most of the cart traffic occurs between the middle of November and the beginning of March, the roads are still traversable and a considerable amount of transportation also takes places, with the exception of the two months of rain during the rest of the year. It is obvious, therefore, that the railway encounters in the cart a competitor not to be looked at with indifference and which, however satisfactory the service and rates established by the former may be, will undoubtedly for some time to come still continue to be an important factor in the trade of Central Manchuria.

Competition between Railway and River to the North.—While, as has already been mentioned, the railway to the south of Changchun is free from competing water-courses for over half of the distance to Newchwang and practically the entire distance to Dalny, to the north not only must it contend with the winter cart traffic, but during the open season, from March to October, with junk and steamer carriage on the Sungari and Nonni Rivers.

The Sungari is navigable for junks between Kirin and Petuna, while between the latter place and its junction with the Amur—Harbin, Sansing, and Manchuli being situated en route—steamers as well ply for six months of the year. The Hurka makes fluvial transportation possible between Ninguta and Sansing. The Yitungho, a tributary of the Sungari, is navigated by junks from a point above Changchun. The Nonni, which empties into the Sungari about 20 miles to the north of Petuna, permits of the operation of steamboats to Tsitsihar, beyond which small junks ascend as far as Merguen.

While the extensive system of waterways above described does not constitute so serious a competitor to the railway in Central Manchuria as does the Liao in the southern part, in that it furnishes no such rapid exit to the seaboard as does the latter, the embouchure being situated at Nikolaievsk and goods destined for Vladivostok under any circumstances necessitating shipment by rail or cart from the point above Ninguta where the Hurka crosses the Trans-Siberian; nevertheless, the Sungari and Nonni, with their branches, must play an important role in the trade of the region under discussion and must be admitted as a factor in determining the policy of railway construction therein.

Centers of Trade and Areas of Distribution.—The city of Changchun is the greatest center of trade in Manchuria; its sphere of collection and distribution is about eight times as large as that of Mukden, four times that of Tiehling, and twice that of Kirin, and extends on the north to Tsitsihar and Pei-tuan-lin-tze, on the east to Omoso, on the south to Hailungcheng, and on the west for some distance into Mongolia. Since the region dependent upon Changchun, however, is much less developed than that dependent upon Mukden or Tiehling, the difference between their trade is not so great as that between their areas of distribution and collection, although with the development of Central Manchuria the comparative commercial importance of the former city will constantly become greater.

Kirin.—The area embraced by Kirin goes northward as far as Sansing, eastward as far as Ninguta, southward as far as Hailungcheng, and westward to a point midway to Changchun.

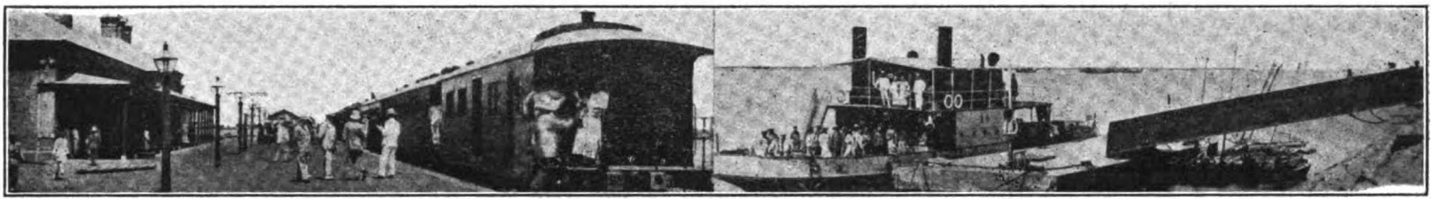
Petuna.—Petuna, while having an independent area of trade and dealing directly to a certain extent with both Newchwang and Harbin, is seen to be within the sphere of Changchun and carries on the larger part of its business with that city.

Ninguta.—Ninguta is situated on the outskirts of the district controlled by Kirin and but 20 miles from the Trans-Siberian Railway, and consequently conducts a more or less extensive trade with both that city and Vladivostok.

It will be seen from a map that the areas of distribution and collection of the various commercial centers overlap each other. This is due to the fact that many midway points constantly deal with two or more marts as well as to the easier accessibility of one point as compared with another during certain seasons of the year, while the existence of a better market in the farther place than in the nearer one sometimes results in a temporary diversion from the ordinary routes. Some points along the Sungari, for example, in the winter time are at present most easily reached by cart from Changchun, but in the summer time by river from Kirin.

Trade between Vladivostok and Central Manchuria.—The question is often asked: Will the future trade of Central Manchuria be conducted through Newchwang and Dalny or through Vladivostok? The answer can concern only the foreign imports and exports, since the native trade between Central Manchuria and the southern parts of the Empire, which will probably always constitute the bulk of the business, will naturally continue to be carried on by way of Newchwang and other southern marts, as shipment by way of Vladivostok would involve the passage of the goods through foreign territory and render them subject to resulting inconveniences with no advantage in the matter of transportation facilities.

As to the foreign export trade of Central Manchuria, the only important products at present sent abroad are beans, bean-cake, and bean-oil, and their market will probably continue to be limited to Japan. The Japanese, consequently, in view of their manifest policy to raise Dalny to the position of the most important commercial port of Manchuria, will divert as much of the export of beans as possible through its gates, while the remainder will probably go out by way of Newchwang and other southern ports rather than Vladivostok.



THE I.R.N.C. STATION, NEWCHWANG

NEWCHWANG FERRY BOAT LIAO TUNG CROSSING THE LIAO RIVER AT THE I.R.N.C. STATION

It is true that whatever wheat is not locally consumed is shipped to Harbin, and ground into flour at the Russian mills, whence a considerable part of that product finds its way into Siberia. Wheat, however, constitutes but a small percentage of the foreign exports; and furthermore, as the erection of several flour mills in the southern part of Manchuria is contemplated by the Japanese, the realization of their plan will mean the diversion of much of it in that direction.

Inasmuch, therefore, as the larger part of the exports of Central Manchuria will continue to pass through Newchwang and Dalny, and as the Chinese merchant generally buys where he sells, most of the imports also will undoubtedly in the future as at present enter by the same point.

It is of course to be borne in mind that the establishment of foreign firms at the newly opened marts will in time enable the Chinese to buy foreign goods as well as sell native products locally, thus obviating the necessity for performing their transactions at Newchwang and Dalny. However, the firms buying from the Chinese will also largely sell to them, and as, moreover, they will for the reasons already described conduct their export business mostly through the southern ports, they will also most likely bring in the larger part of their imported wares by the same route; so that the ultimate localization to a great extent of sale and purchase transactions at the interior marts would not seem to be destined to change the conditions which at present direct the import and export trade of Central Manchuria through Newchwang and Dalny rather than Vladivostok.

However, there is no doubt that the latter place, despite the disadvantages operating against it, will always do a considerable, though relatively small, trade with the marts of Central Manchuria, especially with those in the eastern part, such as Ninguta, and with the exemption

of imports across the frontier from one-third of the regular duties and the realization of the improvement of storage and transportation facilities projected at Vladivostok, it should experience a steady increase.

It is not of course to be inferred from the preceding remarks that Vladivostok is not an important commercial centre; for its trade is not dependent upon Central Manchuria, but embraces the extensive territories of Heilungchiang and Siberia, and, although already large, with the removal of the inconveniences to which foreign merchants are at present subjected and the establishment of regular steamship lines to Japan, China, America, and Europe, it is certain to increase.

to international trade, show an increase over the years prior to the war not only in the amount but also in the variety of imported goods.

Lack of Statistics.—The lack of any reliable source of information makes it impossible to secure statistics at all accurate regarding the trade of Central Manchuria. However, a statement of the exports and imports of Changchun and Kirin based on rather incomplete but what are believed to be tolerably approximate figures supplied by the large hongs of those cities will serve to furnish at least a partial idea of its nature and extent. The statistics which follow are for the last China year, which ended on February 14, 1907, of our calendar,

The value of the entire annual trade of Changchun was estimated by a large Japanese firm which had made a somewhat general survey of the conditions, at about 20,000,000 taels; and while the imports are known to be considerably in excess of the exports, it is very unlikely that the difference can be so great, and if the preceding estimate of the entire trade may be taken as a basis, the amount of the exports should probably be placed at somewhere between 8,000,000 and 9,000,000 taels.

Destination of Exports.—With the exception of wheat, and barley and millet, a small portion of which go to Harbin, the points of destination for almost all the exports are seen to be Newchwang and Dalny.

AMERICAN FARMING IMPLEMENTS

VIEWS OF MUKDEN AGRICULTURAL SCHOOL AND EXPERIMENTAL FARM. MAIN ENTRANCE TO SCHOOL

AT WORK WITH A REAPER

Trade.—The trade of Central Manchuria last year was fairly active and but slightly abnormal. While the general statement that the late war impoverished the people by the destruction of property and the prevention of agricultural production, and threw the market into universal disorder, in such a manner that the effects have not yet been overcome, is applicable to all parts of Manchuria, the degree to which this is true in the Central section is much less than in the south, as active hostilities ceased before their destructive advance had penetrated into the former region.

Credits.—Credits have been on the whole quite constant and stable, although a loss of some two million taels affecting all the important merchants at Changchun caused in 1905 by the speculation of a wealthy native in beans created a disturbance in the market from the effects of which it has not yet completely recovered. The action of the Governor at Kirin in forcibly maintaining the value of the tiao notes at an artificially high rate also tended to interfere

and hereafter in referring to last year the Chinese one will be meant.

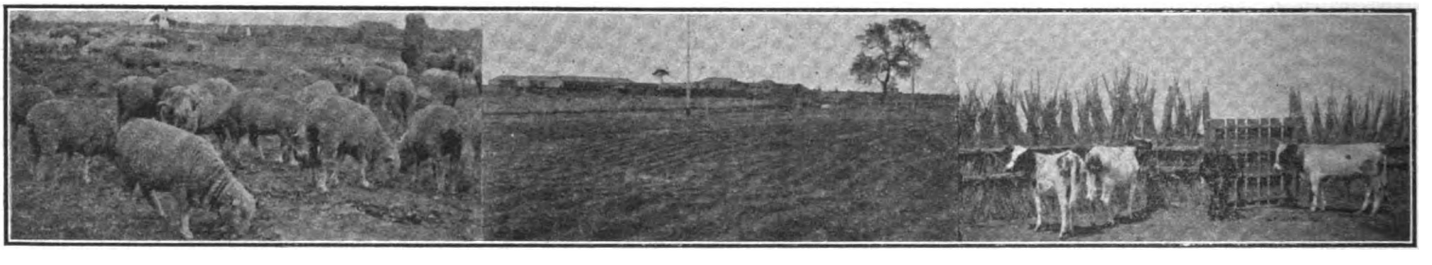
Changchun.—The following is a synopsis of the amounts and values as well as the points of destination of the chief exports of Changchun for last year:

Kind	*Annual Amount.*	*Annual Value.*	*Destination,*
Beans.....	400,000 piculs	800,000 taels	Dalny, Newchwang.
Bean-cake...	50,000 cakes	15,000 ,,	,, ,,
Wheat.....	20,000 piculs	100,000 ,,	Harbin.
Barley.....	10,000 ,,	25,000 ,,	Newchwang, Harbin.
Millet.....	400,000 ,,	2,500,000 ,,	,, ,,
Kaoliang...	400,000 ,,	1,000,000 ,,	,, ,,
Indigo.....	540,000 catties	6,750 ,,	Newchwang.
Reeds.....	30,000 bales	1,125 ,,	,,
Opium.....	10,000 catties	112,500 ,,	,,
Abutilon hemp. ...	10,000 ,,	250 ,,	,,
True hemp..	150,000 ,,	5,625 ,,	,,
Pig's bristles (long)	3,500 ,,	5,075 ,,	,,
do. (short)..	50,000 ,,	30,000 ,,	,,
Horse hair..	5,400 ,,	3,240 ,,	,,
Cow bones..	15,000 ,,	115 ,,	,,
Horses.. ...	5,500 ,,	1,240 ,,	,,
		4,605,920 taels	

Changchun picul = 130 lbs. Changchun tael = $0.87 U. S. C.

Beans.—In the foregoing synopsis of exports it is especially the figures for beans that are believed to be far too small. The larger portion of those exported last year were bought up by the Mitsui Bussan Kaisha, a large Japanese concern, and shipped principally to Dalny.

Bean Cake.—The shipment of bean-cake from Changchun is a new venture, as the loaves are only about one-half the size of those manufactured for the regular export trade and have heretofore been used locally for fodder and fertilizing purposes. The demand for this article in Japan is steadily growing, and owing to the insufficient supply of the large cakes as well as to the want for a part of the market of a less expensive product, increasing importations of an inferior but cheaper grade have of late been made from the Yangtze valley, but, as it has now been found possible to obtain the small Manchurian cakes, which, while not any more expensive, are superior in quality to those from the south, the exportation of the former has undergone a sudden and extensive increase.



VIEWS OF EXPERIMENTAL FARM, EAST GATE, MUKDEN, SHOWING BUILDINGS AND CLASS OF STOCK UTILIZED FOR BREEDING PURPOSES

somewhat with the normal operation of the system of credit exchanges which forms the basis of the larger part of the local trade of Central Manchuria.

Imports.—The imports for the past year were below normal, inasmuch as 1906 and to a certain extent the preceding year had been the occasion for much over-stocking. The end of 1907, however, saw the larger part of the surplus supplies disposed of, and the coming year, if other conditions are normal, as there is reason to believe they will be, should, owing to the more favorable status of the markets since their opening

Value of Annual Trade.—The total value of the exports, therefore, according to the foregoing statistics, is about 5,000,000 taels; but these figures are undoubtedly much too small.

Imports.—The larger part of the imports of Changchun at present consists of goods of Chinese make from the southern parts of the Empire. The principal articles are piece goods, cotton yarn, petroleum, sugar, cigarettes, and miscellaneous merchandise from Newchwang and Dalny, timber and native tobacco from Kirin, and small amounts of flour, cottons, cigarettes, and sundries from Harbin.

Russian goods.—Russian goods, with the exception of flour which is manufactured at Harbin, naturally find it difficult, if not impossible, owing to the long railway haul involved,

to compete in the native market with those brought by sea from other countries; and their importation to a certain extent in the past has been due to the special advantages enjoyed by Russia in this territory as well as to the large number of her troops heretofore stationed there, whose presence has made possible the profitable operation of numbers of her merchants handling principally Russian goods intended for the soldiers but at the same time disposing of greater or smaller quantities to the Chinese. Since the opening to international trade of Changchun, as well as Kirin, of which the same is true, the proportion of Russian stocks in the native shops is gradually decreasing. It is stated, however, that the Russian government purposes to afford every possible means of encouragement to its Manchurian trade, and that not only has it promptly responded to the request of its merchants in Harbin for a reduction in railway transportation rates, but contemplates the reimbursement to them of the Chinese import duties to be levied upon their goods when custom houses shall have been established along the frontier.

Cottons.—The greater part of the cottons imported into Changchun has always consisted of the native product manufactured at Shanghai and other southern cities. Prior to the recent war American goods held second place, after which came English, Russian, and Japanese makes. At the present time, however, Japanese piece goods, have usurped the position formerly held by the American article.

The Mitsui Bussan Kaisha, which at present practically controls the importation of Japanese cottons into Changchun, also handles considerable quantities of American piece goods.

Petroleum.—The majority of the inhabitants of Central Manchuria still content themselves with bean-oil for illuminating purposes. The importations of petroleum last reached about 20,000 cases, which was approximately the same amount as was annually shipped to that place prior to the war. Practically all of this was American, only a small quantity of Russian oil being sold.

Flour.—The market for foreign flour in Central Manchuria is very limited. Small quantities of American flour are imported into Changchun from Dalny and Newchwang, and Russian flour is sent from the mills at Harbin. However, the present selling-prices of the former, owing to the great cost of the long transportation, and of the latter, on account, it is said, of temporary financial difficulties of the manufacturers, are such as to make competition with the native-made flour practically impossible. The Chinese, except in the manufacture of vermicelli for which the white foreign flours are the most suitable on account of their greater glutinosity, prefer those of native make, which are ground from the whole wheat, and buy imported flours only when they can secure them at cheaper prices. The mills at Harbin employ Manchurian wheat, and upon recovery from their present embarrassment and the restoration of normal conditions, it should be possible for them to put out a flour suited to the taste of the Chinese and at such a figure as to compete easily with the native product. It is not probable, unless the cost of transportation or of production be considerably reduced, that American white flour will ever enjoy extensive sales in Central Manchuria. The importation of whole wheat flour, however, might be successful, not only because the cost of placing it on the market would be cheaper but because the Chinese, if their taste were suited, would be willing to pay a higher price for it than for ordinary wheat flour.

The importations of flour into Changchun last year consisted of 10% American, 20% Russian, and the remainder the native product. The selling prices were as follows: American (50 lbs.), $2.60 small coin; Russian, $2.80; native, $1.95.*

Cigarettes.—Prior to the opening of Changchun to foreign trade most of the cigarettes imported were Russian. Since then, however, the Japanese Tobacco Monopoly has established an agency there, and its cigarettes have quickly attained fairly extensive sales. With the opening of the campaign of the British-American Tobacco Company, whose systematic and energetic methods have proved so successful in southern Manchuria, English and American brands are appearing on the market and are certain to gain a rapid ascendency. Cigarettes are fast taking the place of the old-fashioned native pipe and now rank as one of the most important imports of Manchuria.

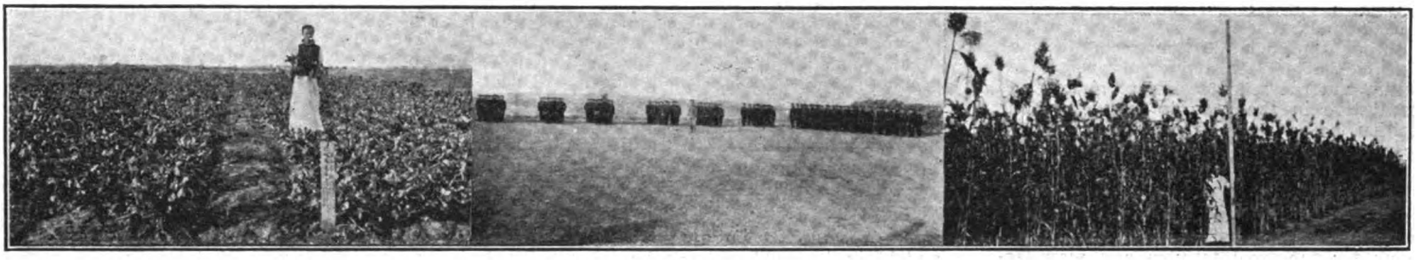
At the present time, the Japanese virtually control the market for miscellaneous goods, and as the old stocks are disposed of, their places are mostly filled by the cheaper Japanese ones.

Not only the customer but the merchant himself is generally unable to distinguish between the makes of his goods. Japanese articles almost invariably contain Roman lettering rather than Japanese, if not both, and in numerous cases they are more or less closely copied imitations of other foreign goods which happen to have gained considerable popularity among the natives. As a consequence the buyer secures a Japanese article and departs with a feeling of satisfaction that he has obtained something similar to his purchase of the previous year but at a much cheaper price.

Kirin.—The exports and imports of Kirin are of the same general nature as those of Changchun.

* $1.00 small coin = $ 0.47 U. S. C.

Exports.—The statement was made by a number of *hongs* that during the four winter months 1,000 carts laden with local produce daily enter the city and during the remainder of the year about 500, one-fourth of them bringing tobacco, three-twentieths hemp, three-tenths beans, and the rest wheat, kaoliang, charcoal, and other products. According to these figures, therefore, there are annually brought into the city, and the larger part thereof exported, about 60,000 carts, or 720,000 piculs, of tobacco; 36,000 carts, or 450,000 piculs, of hemp; 72,000 carts, or 720,000 piculs of beans; and 72,000 carts of wheat, kaoliang, charcoal, and other articles. Such figures as these are of course too indefinite to be at all reliable, serve merely to give a general idea of the extent and nature of the export trade. They are undoubtedly far too high; for while more hemp and tobacco are exported from Kirin than from Changchun, the latter place is a much more extensive center of collection for beans, although according to the foregoing figures it is considerably smaller.



VIEWS OF THE AGRICULTURAL SCHOOL AND FARM NEAR MUKDEN

Lumber.—Another important export of Kirin is lumber. The timber is felled along the Sungari and rafted into Kirin, where it is sawed and a considerable portion manufactured into junks, carts, coffins, and furniture. The sawing has heretofore been done entirely by hand, but the provincial Governor has recently installed a steam sawmill of small capacity.

Ginseng.—Ginseng is also exported from Kirin. The surrounding region is one of the principal sources of supply of the natural root in Manchuria.

Furs of both domestic and wild animals are also shipped from this place.

Imports American Cotton.—There were imported last year only 3,000 bales of American sheetings, and 2,000 bales of drills, while during 1905, the year of over-stocking, 12,000 of the former, and 10,000 of the latter were shipped into Kirin. The stocks remaining on hand at the end of 1906 amounted to 2,500 bales of sheetings and 2,000 bales of drills. The annual importations prior to the war averaged 10,000 of the one and 8,000 of the other.

Flour.—For foreign flour there is practically no demand. In addition to the numerous horse-power mills run by private persons, the Governor operates a steam plant, which, together with the former, more than supply the demand of this region.

Petroleum has begun slowly to replace bean-oil as an illuminant; and the public street-lights, of which an excellent system has been installed at Kirin, consume a considerable quantity. Practically all the oil used is American.

The miscellaneous goods on stock at Kirin are at present principally German and Russian; but, as in the case of Changchun, they will probably be fast supplanted by those of Japanese origin.

FAR EASTERN ENGINEERING, CONSTRUCTION, COMMERCIAL AND FINANCIAL NEWS

ELECTRIC RAILWAYS, LIGHT, POWER, TELEGRAPHS, TELEPHONES, AIRSHIPS, ETC.

THE KEIHLIN ELECTRIC RAILWAY CO.—This company has decided to establish a park at Haneda as an attraction for athletic organizations in Yokohama and Tokyo.

LONG WIRELESS MESSAGE.—The Hokkaido wireless station reports that on January 8th communication was maintained with the Chiro Maru at a distance of 1012 miles to sea.

YOKOHAMA ELECTRIC RAILWAY CO.—The city assembly has given the railway permission to reclaim part of Yoshida Creek for the purpose of constructing permanent way for their line.

NAYOGA ELECTRIC LIGHT.—The report has been received that this company has concluded arrangements for a loan from a British Syndicate for the purpose of carrying out the program of the company.

WEATHER OBSERVATORY AT CANTON.—The authorities at Canton are making preparations for the establishment of a modern observatory. The plans are under way and the funds have been arranged for to cover the initial expenses.

BANGKOK TELEPHONE EXCHANGE.—A system is being installed capable of accommodating 800 subscribers and which may be extended as the patronage increases. The new exchange will be located in Post Office Building No. 1 over the old exchange.

JAPANESE TELEPHONE EXTENSION.—The budget for next year provides for the expenditure of yen 1,200,000 in the extension of the system and the establishment of exchanges. During the next four years it is proposed to expend yen 4,200,000.

THE KYOTO ELECTRIC LIGHT CO.—This company is making arrangements to operate a railway and install electric light service between Fukui and Ono-machi, a distance of 22 miles, and will utilize power from the Nakao hydro-electric generating station.

PEKING-CHINESE ELECTRIC LIGHT CO., LTD.—This is the style name of a new company recently organized in the capital of China for the purpose of supplying light and power. The promotors believe that they have a profitable field for their enterprise.

WIRELESS AT CHINESE MANEUVERS.—The apparatus for the installation of two wireless stations was recently ordered by the Chinese government and supplied by Messrs. Siemssen & Co. of Hankow. They will be utilized during the Autumn Army Maneuvers and maintain communication between Wuchang and Hankow.

THE HYDRO-ELECTRIC POWER CO.—The failure to secure the necessary guarantees for the British capital interested in this proposed venture in Japan, has resulted in a set back to the project. The Industrial and Fifteenth Bank refused their endorsement for the reason that the banks' charters do not permit them to do so.

SHANGHAI'S NEW TELEPHONE EXCHANGE.—The contract for the equipment of the New Telephone Exchange was recently awarded The British Insulated and Holsby Cables, Limited, through their agents, Messrs. Scott, Harding & Co. The contract covering the supply of the machinery and its installation amounts to £16,686.18s. 6d.

RANGOON ELECTRIC TRAMWAY.—The total number of passengers carried on this system, according to the report for the year ended December 31st, 1907, was 6,026,915 against 3,433,540 the previous year. The running mileage was 973,187 and receipts Rupees 5.68,603 against 328,180 miles and receipts Rupees 2,75,753 during 1906. The first electric car was started on this system on December 15, 1906, and the entire system was controlled by electric power on March 1st, 1907.

GENERAL ELECTRIC INVADES JAPAN.—The Jiji Shimpo is responsible for the announcement that the Shibaura Company and the General Electric Company of the United States will form a joint company for the purpose of establishing an extensive plant for the manufacture of electric apparatus with a view to supplying the needs of the Philippines and South China as well as Japan. The capital is said to be one million yen of which 700,000 yen have been subscribed by the General Electric. It is also stated that the company will increase the capital stock of the company in the near future to 4,000,000 yen of which the General Electric will take 51%.

RAILWAYS AND RAILWAY SUPPLIES

NANKING-PUKOW RAILWAY FERRY.—It is proposed to instal a railway ferry between the terminus of the Shanghai-Nanking Railway and the Tientsin-Pukow line.

TIENTSIN-PUKOW CONSTRUCTION.—The ceremony attending the turning of the first sod of the South Section of this line was performed by their Excellencies Lu-Hai-huan and Tuan Fang on January 2nd.

CANTON-HANKOW LOAN.—The negotiations for a loan of 20,000,000 taels from the British and Chinese Corporation are still under way. The proposed loan is to be liquidated in fifty years and at 4% per annum.

KOKURA RAILWAY CO.—This company has secured a charter from the Japanese Government for the construction of a line between Tomino and Haramachi about five miles in length and estimated to cost about a million yen.

KITAYAMA RAILWAY CO.—This company has secured a charter from the Japanese government to construct a line about 24 miles long connecting Narugo and Yoshina. It was organized last year with a capital of yen 750,000.

SOUTH MANCHURIAN RAILWAY ENTERPRISE.—This company is reaching out for trans-continental traffic over its line and has offered free wharfage, coal at the lowest possible rates, and an abundant free supply of water for steamers calling at Dalny.

F. M. S. RAILWAYS.—The sum of eight millions will be expended by the Federated Malay States on the government railways this year out of which over a million will be spent in construction. The estimated revenues for the year are placed at $5,200,000.

LOCOMOTIVE FOR THE PEKING-KALGAN.—A Mallet Compound Locomotive fitted with quadruple cylinders for use on the heavy grades of this line was delivered last month. It will take the place of two engines used at each of the most difficult sections of the line.

HANKOW-SZECHWAN RAILWAY.—His Excellency Chang Chih has been appointed High Commissioner for this proposed line and will at once proceed to carry out the program of construction and especially in making early connection with the Canton-Hankow line.

KOWLOON-CANTON RAILWAY.—It is reported that the big tunnel will be completed by the end of April and with it one of the most difficult tasks set before the engineers in charge of construction. After that there will be little difficulty in completing the British section in less than two years.

SOUTH CHINA RAILWAY PROJECTS.—The construction of the Canton-Macao line is contemplated; and the Fatshan-Kaochou line which is to make connections with the Lienchou-Kiungchou, the Kinchou military line and the Lienchou-Nanning line, is also under advisement by the Board of Posts and Communications.

KAIFENG-HSIANFU RAILWAY OPENED.—This railway was completed and opened to traffic as far as Honanfu on December 26 making in all 226 kilometers of open line. The charter for a line from Kaifengfu to Hsianfu via Honanfu was granted a Belgian company in 1903 and in April, 1907, connection with the Peking-Hankow at Chengchow was made. This line runs through the most fertile and prosperous sections of Honan and Shensi.

PEKING-HANKOW TRANSFER.—On January First the Chinese Government represented by H. E. Liang Shih-yi, Director General of the Chinese Imperial Railways, took over the control of this line from the Belgian Syndicate, the full amount of the redemption having been arranged. This is the most important line in China and its redemption is indicative of the policy of the Chinese government to redeem its pledges and undertake control of her railways at the earliest possible moment.

SINGAPORE TO BURMA BY RAIL.—With the opening of the Singapore Penang line the *Rangoon Gazette* says: "Perhaps the day will come when it will be possible to extend the Penang line northwards through the Siamese States to the Burma frontier, where it would join with a railway through Tenasserim, of which the proposed Maulmain-Yeh line is the first link, but that day is far distant. Much work has to be done on both sides of the frontier before such a scheme will be within the range of practical politics.

JAPANESE RAILWAY CONSTRUCTION.—The gross profit of the government railway for the next fiscal year is estimated at 38,100,000 yen. Subtracting from the sum 29,900,000 yen to be carried to national debt adjustment fund to be used for payment of interest of the railway bonds and others there will remain the net profit of 8,100,000 yen. Of the sum 600,000 yen will be set aside as reserve while the remaining 7,500,000 yen is to be used for the fund of new construction and improvement. However the construction and improvement fund being estimated at 29,100,000 yen the shortage amounting to about 21,600,000 yen is expected to be accommodated by loan.

CHINESE NATIONAL RAILWAY ASSOCIATION. The following regulations have been issued by the Board of Posts and Communications for the Association: (1) there shall be a President and two Vice-Presidents to be elected by ballot of the Constituent Companies who are entitled to one vote each; (2) the Directors General, Deputy Directors General and Chinese Engineers-in-chief of the Constituent Companies are eligible for election as President; (3) the Board shall appoint an official to superintend the election of Presidents on the 1st day of the 8th Moon every year, who are to hold office for one year only; (4) the Association shall consider and decide on the engagement of all officials and the purchase of materials; (5) the Constituent Companies shall contribute towards the expenses of the Association according to the length of their railways as follows—100 to 500 li $500 per annum, 1000 li $1000 per annum and so on proportionately, and (6) the Head Quarters of the Association shall be situated in Shanghai.

PUBLIC WORKS, DOCKS, WHARVES, ETC.

DREDGING CAUSEWAY BAY.—The work of deepening the bay for the purpose of securing an adequate typhoon shelter for Hongkong is being pushed rapidly.

DALNY HARBOR IMPROVEMENT.—The South Manchuria Railway has completed arrangement for a further deepening and enlargement of the harbor with a view to making that port the distributing point for the ports of North China.

NAVAL DOCKYARD AT WUCHANG.—The Viceroy of Hupeh is greatly interested in the establishment of a dockyard at Pehshi Chow for the purpose of constructing and repairing the vessels of Yangstekiang Squadron. An inspection of the Foochow Dockyards is being made with that end in view.

NEW DOCK AT SINGAPORE.—The *Singapore Free Press* announces that the contract for the construction of the new graving dock at Singapore has been given to Messrs. Topham, Jones, and Railton, who finished recently the new Admiralty dock at Gibraltar. There are at present harbour improvement and dock works in progress at Singapore involving an expenditure to the Colony of between two and three millions sterling. The contractors engaged are Sir John Jackson, Limited (mole and harbour reclamation), Westminster Construction Company (wharf accommodation and dock), and now this new contract.

VLADIVOSTOK COAST DEFENSES.—The bill for coast defenses at Vladivostok has been passed by the Duma. Its principal features are said to be that the Port Admiralty, which existed in Port Arthur before the War, will be transferred *en bloc* to Vladivostok; that a sum of 2,400,000 roubles will be devoted to constructing a torpedo station; that 2,600,000 roubles will be applied for constructing a dock, and that further appropriations, the exact amount of which is not stated, will be made for improving the forts and their armament. In consequence, however, of the somewhat straitened condition of Russia's finances, the sum actually allotted for the above purposes in the current year's budget will not exceed 400,000 roubles.

LARGE FLOATING CRANE FOR THE KAWASAKI DOCKYARD.—This equipment was recently delivered to the dock company and successfully tested, with a load of 185 tons. It was built by Messrs. Cowans, Sheldon and Co., Ltd., of Carlisle. The jib is fitted with two lifts—namely, for 150 tons at 86 feet *maximum* radius and 20 tons at 96 feet radius, and can be worked at 26 feet radius. The motion is effected by a pair of heavy steel screws connected to the back of the cantilever, and driven from a pair of horizontal steam engines situated in the hold of the barge. The framework of the crane is of braced form and of steel work throughout, the height from water-level to jib-head pulley at *maximum* radius is 90 feet. The barge was built by Messrs. Denny Brothers, Dumbarton. It is 100 ft. long, 70 ft. wide, and 12 ft. deep, and of steel construction throughout. The barge is fitted with all necessary capstans and fairleads, and the crane is capable of putting boilers on ships of larger dimensions than either the *Lusitania* or the *Mauretania*. Water ballast is employed.

THE NEW SINGAPORE BRIDGE.—During the past six months James Pollock, Sons, and Co., of Lloyd's-avenue, have been sending out as required the 1,300 tons of steelwork which it is to contain, and in a short time now the opening ceremony should take place, says the *London and China Express*. There are two roadways, each 30 ft. in the clear with 7 ft. 6 in. sidewalks, supported by three girders of 192 ft. span, capable of carrying heavy electric cars as well as ordinary wheeled traffic. The longitudinals are well proportioned bowstring girders—the type which possesses perhaps the greatest artistic possibilities; while the overhead cross bracing consists of a series of beautiful arches, through which the roadways pass. At a distance the porticos appear highly ornate, but on a closer inspection it is seen that the interlacing lines of the "pattern" consist of diagonal braces and the like, each of which has its own function in the general scheme. Thus the structure—for the initial design of which every credit must be given to the municipal engineer, Mr. R. Peirce, M. Inst. C. E.—is as praiseworthy from the aesthetic as from the utilitarian standpoint.

SHIPBUILDING, GENERAL MARINE AND FISHERIES

FORMOSA-KOBE LINE.—The Sakaru Maru has been chartered by this line and made its initial trip in the new service on January 10th.

HONGKONG DOCKS.—The Steamer Tarlac of the Tabacalera fleet is to be repaired at the docks. This company reports prospects for 1909 very bright.

SAGHALIEN SALMON.—The Japanese authorities are endeavoring to develop the salmon fisheries of the island and the prospects of activity in this direction are promising.

LIGHTHOUSE FOR ISE BAY.—The Japanese government has provided for the expenditure of yen 35,000 for the installation of a light at Kamijima in the Irap Channel.

CHINESE SHIPBUILDING COLLEGES.—The Board of War has directed that shipbuilding and gun manufacturing colleges be established in Kiangsu, Chekiang, Fokien, and Hupeh.

MINNESOTA SCHEDULE.—This steamer will make Manila a port of call arriving April 20th and will return to Seattle starting April 22nd via Hongkong and Japan, excluding Shanghai on that trip.

TWO NEW STEAMERS FOR THE PACIFIC.—These vessels will be of 15,000 tons register each and will be constructed for Messrs. Andrew Weir & Co. to join the Suveric and the Kumeric in the service between Puget Sound Ports and Victoria and the Far East.

SHIPPING COMPETITION IN PACIFIC.—The Pacific Mail and the Oriental Steamship Co. have reduced freight rates by about 20% as the result of the keen competition following the placing of the Tenyo Maru and the Chiyo Maru on the Toyo Kisen Kaisha trans-Pacific run.

EIGHTEENTH ANNUAL DINNER OF THE INSTITUTE OF ENGINEERS AND SHIPBUILDERS OF HONGKONG

The annual dinner of this institute, which represents a membership of over 250 members, was held at the Hongkong Hotel on the evening of February 26th and marked by the usual enthusiasm. This institute is the oldest of its kind in the east and its history is closely identified with the growth of the shipbuilding industry in Hongkong to its present formidable proportions. President T. Robertson, responding to the toast "Engineering and Shipbuilding in Hongkong," reviewed the successful history of the Institute and directed attention to the splendid library of over 400 volumes that had accumulated and to the great benefits from association that the members have enjoyed both socially and professionally, and in conclusion hoped that the day was not far distant when excellently equipped yards in Hongkong would be turning out Pacific greyhounds equal to those of the enterprising Japanese.

He was followed by Mr. Robt. Mitchell, chief manager of the Hongkong and Whampoa Dock Co., Limited, who has spent about 25 years in the colony and engaged actively during that period in connection with engineering and shipbuilding. He reviewed the growth of the industry and the remarkable increase in the capacity of the engines from what was considered large at 300 h. p. and now 4,000 h. p. engines turned out in the colony that was the occasion for little surprise. He was not so sanguine of the Hongkong greyhound for the reason that the maternal government to provide subsidies in Hongkong was lacking. He expressed the hope that when the University of Hongkong was established a John Elder would appear and endow a chair of engineering and shipbuilding. He concluded his remarks by reference to the proposed combustion engine and stated that he never liked to say good-bye to an old friend. The steam engine had been a trusty friend and could be depended upon. He appreciated that the internal combustion engine was yet in the experimental stage and had great possibilities before it. He anticipated that the rising generation would possibly see it perfected and reap untold benefits.

Among those present, says the *Post*, were: President T. W. Robertson; Past Presidents D. Macdonald, W. C. Jack, H. T. Richardson, and W. A. Crake; Vice-President T. Skinner; Messrs. H. B. Bridger, G. E. Glover, G. A. T. Cousins, G. A. Hill, L. G. Hales, C. L. Hughes, C. Strafford, J. Paine, J. Walker, Capt. Majer, J. Glendinning, J. Gray Scott, R. Packham, G. R. Edwards, J. Lawrence, F. T. Chapple, G. L. Duncan, F. H. H. Stevens, C. A. Peel, W. Waterhouse, H. Hunter, G. T. Lloyd, A. Ramsay, T. Petrie, F. Hicks.

DEUTSCH-ASIATISCHE BANK

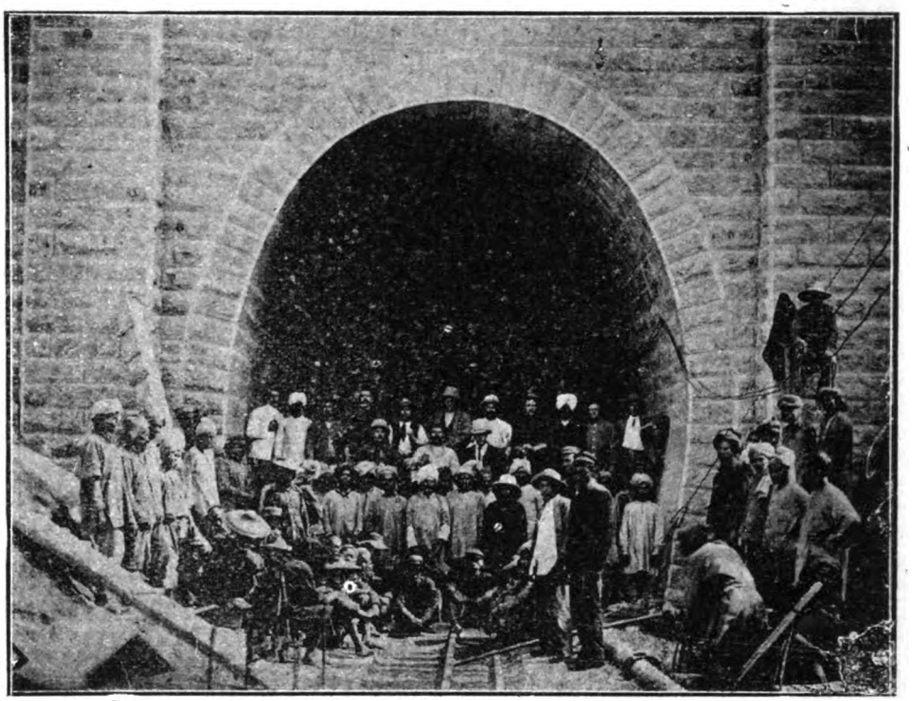
The German community in Tientsin have added not a little to the architectural splendor of the foreign Concessions—not only their own building of the new Club Concordia, but the British also by the erection of several handsome hongs—and the latest of these new structures is the building of the Deutsch-Asiatische Bank, says the *China Times*. This is situated not in the German Concession but in Victoria Road in the British Concession—a most central and advantageous situation.

The new building is certainly an admirable architectural ornament to Tientsin. It is in style an old French modernised. The designers and principal architects of the internal part of the building are Messrs. Becker and Baedeker, of Shanghai, whose local representative is Mr. Suhr. The wood-work throughout the building is dark oak, making a striking contrast with light walls. The electroliers, which are particularly pretty, are of antique and heavy pattern. Some were designed specially and were imported from Germany. The electric installation is the work of the Siemens-Schuckert Werke.

THE KOWLOON-CANTON RAILWAY

Mr. Murray Stewart, chairman of the committee, who presided at the annual meeting of the China Association held in Hongkong, February 2nd, in his address to the Association upon moving the adoption of the report for the year, gave an interesting review of the year's work. After touching on the desire of the British community of Tientsin to maintain a post office, the yarn lottery, trade marks and other minor matters, he devoted some time to a review of the progress of the railway to Canton and the prospect for its completion. In this connection he said:

"The day when it will be possible to take a ticket from Kowloon to Calais seems still provokingly remote. Of giant strides towards the realization of this dream I wish we could hear more. As a beginning I wish we could even see good reason to believe that it will soon be possible to take a ticket from Kowloon to Canton. I wish there were good grounds for hoping that the Chinese section of the line thither will be completed as soon as the British section. I wish we could ascertain that the acquisition of the requisite land was being pushed forward vigorously. Unfortunately we know that it is not. For some reason there is delay. Money for the purpose has been handed over in various instalments to the official responsible, but still the business hangs fire. The difficulties of acquiring land for the Yueh Han Railway have been overcome with comparative ease. What is it that makes the difficulties on the Chinese section of the Kowloon line so much more formidable? No wonder if in this Colony we ask the question with some impatience. As regards the reference in the report to the work of construction on the Kwangtung section of the Canton-Hankow Railway a word of explanation is necessary. The rapid progress recently made was noted with satisfaction. The particulars are public property. Forty-four miles of track are open to traffic. Two trains run daily over the whole distance. Each way the journey takes three hours. This does not rightly indicate the top speed of the train. In the 44 miles are 12 stoppages. Additional trains run regularly to a halfway station some 20 odd miles out from Canton. Already the stimulating effect is apparent. It is not only that villagers throng the train. That fact is patent to any casual observer. A fact not so readily realized is that there is also the beginning of a local freight traffic—cattle and vegetables coming into Canton from the country—fish going out to inland villages. As a local line the success of the undertaking is already assured. Precisely because of that there is danger. There is danger lest the management should see no further than that. The directors are drawn chiefly from the local gentry and merchants. It is probable that few of them have travelled at all. It is therefore open to doubt whether they realize to the full the possibilities opening out of the little station yard at Wongsha. Failure to realize those possibilities now will result in curtailing them hereafter. If the railway is ever to be operated as part of a great trunk line and a large local traffic is to run simultaneously, a double track in the immediate vicinity of Canton will become a necessity, and there will be pressing need for more room at the terminus. It will be well for the future of the enterprise if these things are realized and acted upon promptly. The price of both land and labor will rise as the influence of increased facilities of communication makes itself felt. The directors should look ahead. They have the history of the shortsightedness of any number of other pioneer directors similarly situated in other countries to guide them. The criticism thus elaborated is made in no carping spirit. It is made in a friendly spirit. It is not made because this Association has in former years committed itself to the opi-



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FINISHED ENTRANCE TO BEACON HILL TUNNEL, BRITISH SECTION KOWLOON-CANTON RAILWAY

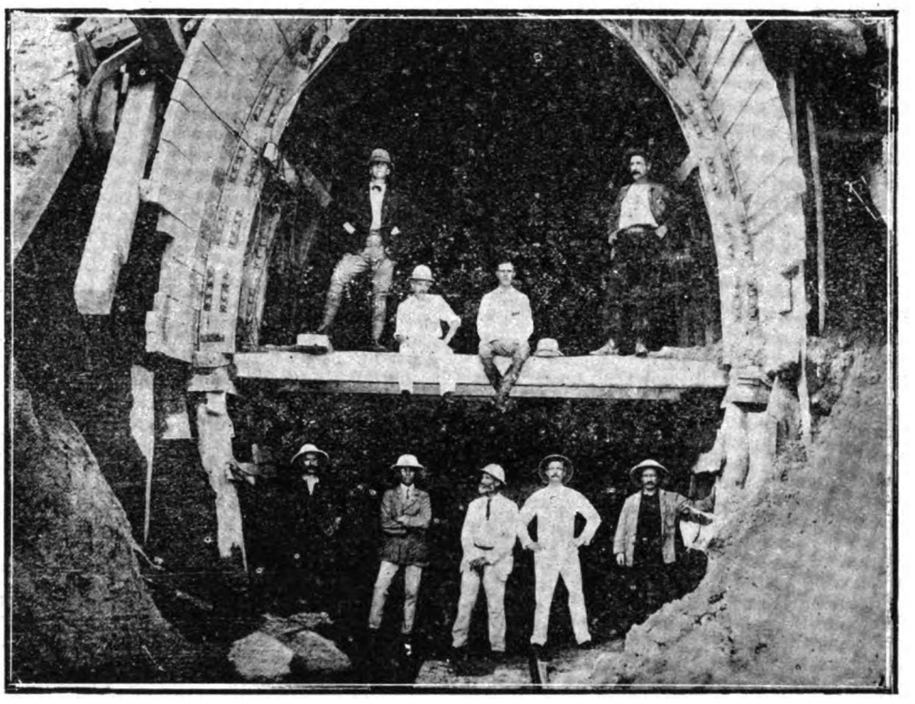
nion that the Chinese would be wise to entrust the building of the whole line from Hankow to Canton to a foreign contractor. We may hold to that opinion and yet, realising the uselessness of putting it forward at the present time, accept the position that the people of Kwangtung prefer to build their own railways and to wish them success. But our interest in the progress of the line justifies criticism of the methods employed in its construction. When the Hongkong Government lent the money for its redemption the understanding was that the line was to be built; the project was not to be hung up or merely played with. For sometime it looked as if the Chinese were merely playing with it. That was the impression which I received some two years ago when I paid a visit to railhead. I was still under that impression when at last year's annual meeting, after a year's absence in England and speaking with the greater freedom of an ordinary member, I made a remark which was held unduly to disparage the progress made. I desire to make what amends I can now by giving equal publicity to an opinion recently expressed by an expert witness, a highly qualified railway engineer, that, judged on the lines which have been adopted by the management, progress may be regarded as not unsatisfactory (applause). This does not disprove the contention that the Chinese by themselves cannot yet successfully undertake serious railway enterprise, because of course they are employing foreign engineers of various nationalities. The tunneling difficulties which lie in wait, somewhere about the seventieth mile, and the heavy bridge work entailed by the crossing of the North River, will test the efficiency of their staff methods, in due time, but in the meantime the point I want to make is that, in expert opinion, the work done, as far as it goes—for the 45 miles of track at present laid—some ballasted, some not—some bridges permanent, others temporary—and for 35 miles of embankment reported as being nearly complete beyond—the work done does receive guarded commendation. But that is no reason why we should refrain from criticising, on general lines, the directors' policy, if we consider it susceptible of improvement."

HONGKONG TYPHOON SHELTER

Mr. J. F. Boulton, Second Assistant Director of Public Works of Hongkong, submitted an exhaustive report on the proposed typhoon shelter at Mongkoktsui to the Legislative Council last month and which was the result of a conference with Messrs. Coode, Son and Matthews, the consulting engineers. A modification of the original and extensive scheme is recommended and will enclose an area of 169 acres while the original scheme involved an area of 194 acres. The report follows:

"I beg to submit the following report on my recent conference with Messrs. Coode, Son and Matthews, the Consulting Engineers, with reference to the proposed shelter at Mongkoktsui, for the protection of small craft during typhoons. The object of the conference was to obtain an expression of opinion upon the suitability of the proposed shelter and the sufficiency of the proposed breakwater.

"To enable the consulting engineers to pronounce upon the subject, I supplied them with the following materials and data:—Charts of Hongkong Harbor and surroundings, showing the relative positions of the anchorages and of the proposed shelter; the depth of the water in and adjoining the shelter; the maximum exposure which the breakwater would have to face; and the positions of various sea walls which withstood the typhoon of 18th September, 1906, and of others which were damaged or demolished by that typhoon. Detail drawings of the sea walls referred to. Diagrams prepared from Kowloon Observatory records showing the daily direction, force, and duration of the wind during a series of years. Tabular statements showing the behaviour of the wind during a number of severe typhoons, as registered at the Kowloon Observatory. Information concerning the character of the sea as developed by a typhoon; and concerning the character of the small craft which the shelter is designed to protect. Particulars about the levels and nature of the hard bottom and overlying deposit on the site of the breakwater. A detail cross section of the proposed breakwater, and a specification of the same. A schedule of prices of materials and labor. Information about the location and character of the quarries from which materials are to be drawn for constructing the breakwater; about local methods of work; etc., etc., etc. The consulting engineers were of opinion that, as typhoons mostly begin from the north-east, the position of the shelter, being under the lea of the shore, was well chosen from the point of view of accessibility. They considered that the breakwater, either with regard to its direction or the extent of the sheltering work contemplated, could not be improved. But they were of opinion that, unless the widths of the entrances were contracted, the area effectively sheltered by the breakwater would be much and unnecessarily reduced. The obvious way of contracting the width of the northern entrance was to continue the breakwater northward for some distance; but I had to point out that, if that were done, the contracted entrance would be blocked by the rocky shoal which projects southward from K. M. L. 32 (the Asiatic Petroleum Co.'s Oil Works). The best way, therefore, and ultimately the most economical way, of narrowing the entrance would be to adhere to the position originally chosen for the north head of the breakwater, and extend the Oil Works point of land southward, by reclaiming the rocky shoal. I reckoned that the saleable value of the area reclaimed would go a long way towards defraying the cost of carrying out the reclamation. The southern entrance could easily be narrowed by curving in the south end of the breakwater sharply towards the shore; but I suggested that it would be preferable to adhere to the original plan entirely, as far as the breakwater was concerned, and narrow the southern entrance by building out a jetty from the shore, in line with Sixth Street. The jetty would be very useful as a public landing place, and the reduced entrance would occupy a position where vessels could easily make it without having to hug the shore. The consulting engineers approved of these suggestions and recommended that the widths of the entrances should be reduced accordingly—the northern entrance from 900 feet to 300 feet, and the southern one from 840 feet to 390 feet. They considered that these widths would be quite sufficient for the traffic, and for the promotion of such a circulation of water within the sheltered area as would prevent stagnation and the serious deposit of silt. These opinions were based on the information which I was able to give regarding the nature of the traffic, and the strength and direction of the tidal currents.



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ENGINEERING STAFF AT BEACON HILL TUNNEL HEAD

"With reference to the form of the breakwater: While approving of the general character of the original design, the Consulting Engineers were of opinion that certain alterations, which they considered of importance, should be made in the details. They recommended that the slopes should be flattened; that a wide berm of five-ton boulders should be substituted for the ramp of ten-ton concrete blocks; and that the upper portion of the outer slope, which was originally intended to be covered with concrete in mass, faced with granite pitching set in cement mortar, should simply be covered with pitching consisting of ten-ton concrete blocks set dry. The inner slope should be covered with dry stone pitching, in accordance with the original design; and the sizes and distribution of the materials in the rubble mound should, in the main, be in accordance with that design. The consulting engineers entirely concurred in believing it to be necessary that a trench should be dredged in the mud, for the purpose of reducing the lateral spreading of the foundations, as the rubble is deposited. Having regard to the nature of the bottom on which the breakwater has to be constructed, and the character of the local labour and

"*Worms.*—Very fine pale still command a very high price, but we regret to see that as the quantities increase the quality as far as color is concerned is not as good, and only a small proportion turns out almost white as wanted. Gikiyanakande Estate still sends the bulk of this grade, but several other estates, including Taldua, have shipped some very fine though small lots.

"*Scrap.*—Scrap has sold extremely well throughout the year, both in ordinary crinkly scrap form and in brown Crêpe. In Crêpe form scrap certainly realizes a better price, and we would strongly recommend planters to prepare it in this way, taking care not to roll too thin which makes it weak and brittle. Scrap Crêpe should be hard, strong and gristly.

"*Castilloa.*—Only small shipments from plantations are coming as yet, but the sheets from Ambanganga Estate in Ceylon show what can be done, and that rubber from this tree properly prepared is nearly equal in quality to ordinary Para sheets and biscuits. Nothing of any note has come from Java and Sumatra so far, and we have only received small lots from the West Indies. The improvement in preparation of small lots from Tobago is most gratifying.

"*Rambong.*—Rambong (Ficus Elastica) is now a most popular grade and has realized splendid prices throughout the year. It is most liked in Crêpe form. Some very fine lots recently realized up to 4*s.* 8½*d* per lb. There is a good and increasing demand and any quantity will be welcome."

CHINA'S NORTHERN RAILWAY

According to the correspondent of the *Peking and Tientsin Times* at Peking under date of February 8th the section of the Peking-Kalgan Railway from the Nankau village to Huailai was opened on February 6. The line formerly ran only from Fengtai to Nankau, but now has reached the Pass.

The opening was a great success, and the Chief Engineer and Director General of the Road, Taotai Jeme Tien-Yow, A.M.I.C.E., as well as the sectional engineers, among whom is Yen Te-Ching, the builder of the 3570 feet long tunnel at the Pass, are to be congratulated upon the success.

From the entrance into the Pass at Nankau to its highest point, the road rises in a distance of only ten and a half miles fully 1800 feet. The place is well worth seeing as the scenery is beautiful, and many interesting things may be noted, such as when columns of camels take tea and other products into Mongolia or bring wool, etc. from the outer marches of the Empire.

The trains through the narrow pass are worked by "Mallett" locomotives, which have given full satisfaction.

Sectional Engineer Yen Te-Ching is now to join the Anhui section of the Yangtze Valley railway and later on will be Assistant Chief Engineer on the construction of the Szechuan line.

Reviewing the report of Taotai Chan Tien-yu, (Jeme Tien-yao), director and chief engineer of the Peking-Kalgan line, *Chinese Public Opinion* says:

"According to a recent report from Taotai Chan Tien-yu, (Jeme Tien-yao) director and chief engineer of the Peking-Kalgan Railway, which is in course of construction with Chinese money and supervision, the whole line, about 443 li in length, will be completed before the end of 1909. All the tunnels at Pa-ta-ling and Chu-yung-kuan are fast approaching completion. The Ministry of Communications has issued instructions to Taotai Chan, commanding him to make a careful survey from Kalgan to Kueihuacheng and Shuiyuancheng (on the Shansi and Mongolian borders), so that the line may be extended to the two cities and thence to Kulun (Urga, capital of Mongolia) and Kiakhta (on the Russo-Chinese frontier). It will further be extended to Kansuh and Hsinchiang forming the great north-western link as approved by the Chinese Government. The required capital for the construction of the Kalgan-Kueihuacheng-Shuiyuancheng railway will be taken from the surplus profits of the Peking-Mukden line in the same way as for the Peking-Kalgan railway.

It is estimated that about Tls. 20,000,000 will be required for extending the Peking-Kalgan line to Kiakhta *via* Kueihuacheng and Kulun, and it will take more than six years to build it. As Taotai Chan, who was educated in the United States, and is probably one of very few competent Chinese railway engineers who can build lines without foreign assistance has shown skill and experience in building the Peking-Kalgan railway, the Ministry of Communications will no doubt put the full responsibility of the extension on his shoulders.

In view of general shortness of money in every part of China at the present moment, and the large sum of money it requires for the construction of this important railway which will traverse Chihli, Shansi, Mongolia, Kansuh, Hsinchiang and Ili, I think it will take a few years for the Chinese Government to put the proposal into effect. The commerce between Mongolia and North China will be greatly developed when the Kalgan line is completed in 1909, and then extended to Kulun and Kiakhta. The Ministry of War is also in favour of the construction of the proposed extension, for, from a military point of view, it will be very useful to China to have quick communication with Mongolia and Chinese Turkestan."

PHILIPPINE GOLD OUTPUT FEBRUARY

Benguet Consolidated Mining Company 150 oz. and 200 pounds cyanide.

The Paracale Gold Dredging Co. 630 oz.

F. M. S. TIN OUTPUT, JANUARY

	Piculs.
Belat	531
Bruseh	305
Gopeng	555
Kanaboi	266
Kinta	270
Kledang	455
Kuantan	60
Lahat	1278
New Gopeng	100
Pahang Consolidated	1500
Pusing Lama	638
Rambutan	170
Royal Johore	140
Salak South	372
Sempam	73
Serendah	294
Sipiau	90
Tekka	300
Tronoh	1762

BUSINESS NOTES

The Export and Import Lumber Company of Manila, successors to Messrs. B. W. Cadwallader & Co., has been extending its operations during the last year and also enlarged their yards in San Miguel and Nagtajan. The Schooner W. H. Talbot recently discharged one million feet of Oregon pine for this company and a million and a half is now on the way. Besides the importation of Oregon pine, the company is making a specialty of railway sleepers and other timbers for railroad construction of Philippine hardwoods. Recently a shipment of 7,000 pieces for sleepers was made to China for use in the construction of the Yangtzse railways. This is no doubt a forerunner of larger orders from China. A contract for 200,000 feet of native lumber was concluded with the American Federal government for use in the fortification work on Corregidor. The Pacific Export Lumber Company of Portland, the largest exporters of Oregon Pine from the Pacific states to the Orient is interested in this company and its standing and equipment could not be better. The mills at Tanduay are always busy and the development of the Philippine hardwood lumber trade is receiving special attention and with great success. Mr. W. W. Paine, the general manager, recently returned from a trip to North China and is greatly encouraged at the prospects of the Philippine hardwood export trade to China.

The construction of the Philippine General Hospital buildings for the Insular Government at Manila under the direction of the Manila Construction Company is proceeding apace. Mr. Thurber, the manager, has a perfect organization and his machinery equipment is well adapted to expeditious fulfilment of the contract. The main work on the buildings will be completed by the beginning of the rainy season. The contract price for the group of buildings is in the vicinity of ₱750,000.

A GERMAN MINING ENGINEER, WITH SIX YEARS' ACTIVE EXPERIENCE IN MINING ENTERPRISES IN THE EAST, DESIRES TO MAKE A CHANGE. GRADUATE OF MINING ACADEMY. ADDRESS, "GERMAN," CARE OF THE FAR EASTERN REVIEW, SHANGHAI.

NAVAL ELECTRICAL CONTRACT

One of the largest contracts for electrical supplies has been just awarded by the Navy Department at Cavite to The People's Company, of Manila, and includes a large order for fans, motors, carbons, etc.

The principal item was a large consignment of incandescent lamps which the Navy heretofore has been obtaining direct from the Navy Yard, New York; it is understood that The People's Company is obtaining these lamps from Japan, where the General Electric Co. has a branch manufacturing plant

ADVERTISEMENT

OFFICE OF THE MUNICIPAL BOARD.—Manila, P. I., February 15, 1909.

Sealed bids or proposals will be received by the secretary of the Municipal Board, Manila, P. I., until 12 o'clock m., July 1, 1909, for furnishing gate valves, air valves and fire hydrants for the city of Manila, Philippine Islands.

The total amount to be furnished will be approximately one hundred and sixty (160) gate valves, twenty (20) air valves, and three hundred and twenty-five (325) fire hydrants.

Specifications, general plans, and blank forms of proposal may be obtained at the office of the secretary of the Municipal Board, Manila, P. I., or from the Chief of the Bureau of Insular Affairs, Washington, D. C.

Each proposal must be accompanied by a certified check for three thousand dollars ($3,000), United States currency, drawn on a local bank; or a bond in like amount, signed by a fidelity insurance company, authorized to give such bond in the Philippine Islands, as a guaranty that the bidder, if awarded the contract, will, after due notification, promptly enter into contract and furnish an acceptable bond in the sum of twenty (20) per cent of the sum total of the contract price for the faithful performance of the work.

The right is reserved to reject any or all bids.

H. L. FISCHER,
Secretary of the Municipal Board

J. P. CASE,
Chief Engineer, Department of Sewer and Waterworks Construction.

FAR EASTERN ENGINEERING, CONSTRUCTION, COMMERCIAL AND FINANCIAL NEWS

ELECTRIC RAILWAYS, LIGHT, POWER, TELEGRAPHS, TELEPHONES, AIRSHIPS, ETC.

TIENTSIN ELECTRIC RAILWAY.—The gross receipts of this company for year ended December 31st, 1908, amounted to $191,285.

WIRELESS ON AMERICAN BOTTOMS.—The United States Congress is considering a bill requiring all the vessels of the American marine carrying passengers to have installed thereon a wireless apparatus.

PEKING TELEPHONE SYSTEM.—The Board of Posts and Communications have advertised for tenders for the installation of a new telephone system in the capital to supplant the old one which has given very poor satisfaction.

CHINESE TELEGRAPH SUPPLIES.—The Peking government has purchased a large quantity of telegraph wires and posts to be used in constructing a line connecting Peking and Paoting. The work of installation is now under way.

CHINESE POSTS AND TELEGRAPH COLLEGE.—The course in the college will cover three years and the student may qualify on certificates from the Shanghai school or from the provincial schools with a knowledge of English as one of the requirements.

SIDNEY LIGHTING.—The municipality has expended the sum of £419,000 in installing a complete system of electric lighting and it is estimated that it will cost £200,000 to give a complete and effective service. Expert opinion is being secured before the final plans are accepted.

TASMANIA ELECTRIC RAILWAYS.—Arrangements have been made by the City Council of Launceston with Messrs J. G. White & Co. for the installation of a system of electric tramways in the municipality, the current to be generated at a station on the Esk River and equal to about 1,380 h.p.

MANCHURIAN TELEGRAPH LINES.—The Chinese government has undertaken to establish telegraph lines connecting Antung, Newchwang, Liaoyang, Mukden, Tiebling, Kwangchentze, and the railway zone to be placed at the disposal of the Japanese for 15 years in return for a royalty.

JAPANESE TELEPHONE COMMUNICATION.—The government has now invested in these lines the sum of 20,000,000 yen and represents about 22,000 miles of line; 78 exchanges ordinary, and 153 special; 539 call offices and 233 automatic telephone boxes. There are estimated about 60,000 subscribers.

SIBERIAN MOTOR TRANSPORTATION.—The adaptability of the motor appeals to the Russian government and several roads are being built in the Trans-Baikalia and Upper Lina regions so that motor cars may be used not only in carrying Mongolia products out of the country but to transport Russian colonists to the Russian frontier.

MOTOR CAR IN MONGOLIA.—Kalgan and Urga will soon be connected by a substantial roadway over which a motor car service will be established for the purpose of relieving the congestion of traffic and develop that region. This road when completed will be 125 miles in length and it is expected that a large amount of traffic will thus be secured by the Pekin-Kalgan line.

FUKUOKA ELECTRIC RAILWAY.—The municipality of Fukuoka has decided to raise a loan of half a million yen for the purpose of improving the streets and a company has been formed for the purpose of constructing an electric line in the city and to add branch lines connecting Hakozaki and Hiruno and also with Hakata. The railway enterprise proper is being promoted by Messrs. Fukuzawa, Matsukata, Kawasaki and other capitalists.

KWANTUNG-CHEFOO CABLE.—The agreement between the Chinese and Japanese governments in regard to the control of this line provides that the Chinese shall assume control of the line from a point 7 miles from Chefoo and the Japanese from that point to the peninsula of Kwangtung. The Chinese also contracted to construct a line at Chefoo connecting the end of the cable with the Japanese post office at that point. This is the agreement providing for the transfer of the lines of telegraph built in Manchuria by Japan to the Chinese government outside the Manchuria Railway zone.

ELECTRIC LIGHTING IN KIRIN AND MUKDEN.—The firm of Messrs Siemens, Schuckert Werke of Shanghai has installed an electric lighting plant at Kirin and has the contract for the installation of a large plant at Mukden. The Kirin installation consists of two boilers by Borsig, Tegel, Berlin, supplying steam at 150 lb. pressure to two high-speed compound engines built by W. H. Allen and Sons, Bedford. The engines are coupled direct to Siemens 165 KVA alternators supplying 3-phase current at 5,000 volts with a periodicity of 50, which is transformed down to 220 volts for consumers. The installation at Mukden will consist of one 350 B. H. P. Belliss engine and one 250 KVA Siemens Schuckert dynamo for the present.

SOOCHOW ELECTRIC LIGHT WORKS.—This system which was recently completed has a capacity of 6,000 lamps of which over half is now being utilized while the demand is increasing. The installation was made by Messrs. Siemens Shuckart Werke. In this plant there are three Krupp Lancashire boilers, 7ft. 3in. in diameter by 31ft. long, with dished ends and corrugated flues, supplying steam at 150 lb to two open type Schickau engines running at a speed of 250 revolutions per minute. These engines have 14in. and 23in. cylinders with a stroke of 14in., and are arranged with a jet condenser and air pump worked from the low pressure crosshead. The engines are coupled direct to Siemens 175 Kva alternators, generating 3-phase current at 2,200 volts, the area of distribution being less than in Kirin. Current is transformed down for consumers to 220 volts.

RAILWAYS AND RAILWAY SUPPLIES

ANTUNG-MUKDEN LINE.—The survey of this line which began in January is still in progress.

NEW SOUTH MANCHURIA RAILWAY HEADQUARTERS.—This company has moved into its new headquarters at Dairen.

KANSI RAILWAY SLEEPERS.—The Mitsu Bussan Kaisha has secured the contract for the delivery of sleepers for the construction of the Kansi railway.

KUACHOU-LUCHOUFU RAILWAY.—It has been decided to construct the section of this projected road between Chingkiang and Luchou as the initial work on this line.

SOUTH MANCHURIA RAILWAY.—The passenger and freight receipts for the month of January, 1909, amounted to yen 1,496,614, an increase of yen 627,536 over the corresponding month, 1908.

THE CHANGCHUN JUNCTION.—The new arrangement for a junction of the Chinese Eastern Railway and the South Manchuria Railway is now in effect and the temporary station at Kwanchengtzu abolished.

SOKAI RAILWAY CONCESSION.—The Railway Board has sanctioned the construction of a line from the railway station in Yokohama along Tokyo Bay for a distance of 33 miles to Zushu. The capital of this company is placed at yen 1,800,000.

EAST ASIATIC COMMERCIAL INTELLIGENCE INSTITUTE.—The South Manchuria Railway has established a bureau of information at Tokyo for the purpose of supplying available information in regard to trade, industry, railway and shipping in Eastern Asia.

CHEFOO-WEIHSIEN RAILWAY.—This company has purchased its supply of rails from the Japanese, according to the *Peking and Tientsin Times* and the price is said to be very low The materials referred to were captured from the Russians at Port Arthur.

YOKOHAMA RAILWAY LOAN.—This company has decided to raise a loan of yen 2,000,000 for the purpose of defraying the expenses of constructing a branch from the Kanagawa station to the reclaimed area in Kanagawa and for the redemption of loans outstanding.

CHINESE EASTERN RAILWAY.—An agreement has been reached by the Russian and Chinese governments for the construction of a light railway from Hanhin to Hsinfu and Pai Chuen in order to provide transportation for the products of the region tapped to Russian territory.

INDIAN RAILWAY CONTRACTS.—Contracts for Jarrah timber sleepers for the North-Western Railway have been placed as follows: Messrs. Shaw Wallace, Karachi, 150,000 sleepers; Messrs. Millar, Karri and Co., Calcutta, 100,000; Messrs. Bartram and Son, Melbourne, 50,000.

THE KASHING RAILWAY.—The road bed has been completed between Hangchow and Kashing, but the ballasting is not finished. It was expected to run through trains over the road in February. The Kashan section is studded with bridges, eleven being completed and 16 more projected and under way.

TIENTSIN GOVERNMENT RAILWAY SHOPS.—The Ministry of Posts and Communications have decided to install a large plant at Tientsin for the purpose of manufacturing all kinds of materials for railway construction so as to meet the demand locally. The plant will be started early in the Spring.

PROPOSED KIRIN-KAI-LUNG CHENG-ANTUNG RAILWAY.—Capitalists of Kirin, who were anxious to secure control of the Kirin railway, finding that the Japanese would not consider a proposal to redeem, have decided to construct a line from Kirin to Kai-lung Cheng and later continue it to Antung with the funds.

BURMA RAILWAYS.—Traffic earnings for the week ending 23rd January 1909, R4,27,248; for the corresponding week of last year. R4,97,460; decrease for the week, R70,212; total earnings for half-year R13,-67,535; total earnings for the corresponding half of last year, R16,33,447; decrease for the half-year, R2,65,912.

TIENTSIN-PUKOW CONSTRUCTION.—The work on the northern end is reported to be progressing rapidly. The grading is reported finished generally to Tsinanfu. Several brick yards are being established to supply material in the absence of a satisfactory quantity of stone. The laying of rails and ballasting will commence early in the Spring.

SHANGTUNG COAL RAILWAY.—The material for the construction of the line from Taierhechwang to the coal mines north of Yi Hsien has been received and it is expected to complete the line to the latter city by next December. The mines are 25 li North of Yi Hsien and in all will be about 85 li in length. It is the purpose of the company to extend the line to connect with the Tientsin-Pukow where the main line crosses the canal, north of Han Chwang.

YUNNAN RAILWAY LOAN.—The loan of £2,000,000 authorized by the French government for the purpose of meeting the expenses of construction will cover the estimates in the budget for the year and from estimates submitted the cost of the entire construction to Yunnanfu will reach the neighborhood of £7,000,000, over double the original amount suggested. The road to Mengtsze from Laokai is expected completed soon and the entire construction to Yunnanfu in 1910. The section to Mengtsze is considered the most difficult part of the construction.

NEW INDIAN PROJECTS.—The Railway Board has sanctioned a survey being made by the Agency of the Oudh and Rohilkhand Railway Administration for a line of railway on the 5 feet 6 inch gauge from Sitapur to Burhwal combined with a short connection between Burhwal and Daryabad, a total distance of about 78 miles. This survey will be known as the Sitapur-Burhwal-Daryabad Railway Survey.

The Railway Board has sanctioned a survey being made by the agency of the Burma Railways Company for a line of railway on the metre gauge from Myogwin to Kamanksu, a distance of 23 miles. This survey will be known as the Myogwin-Kamanksu Railway Survey.

The Railway Board has sanctioned a survey being made by the agency of the Oudh and Rohilkhand Railway for a line of Railway on the 5 feet 6 inch gauge from Sitapur to Burhwal, combined with a short connection between Burhwal and Daryabad, a total distance of about 78 miles. This survey will be known as the Sitapur-Burhwal Daryabad Railway Survey.—*Railways.*

PUBLIC WORKS, DOCKS, WHARVES, ETC.

NIKOLAEVSK NAVAL STATION.—The Russian government has decided to establish a station at this port for the purpose of protecting the Amur territory.

GRAND CANAL IMPROVEMENT.—The Viceroy of Chihli has authorised the compilation of estimates and the drafting of plans for the purpose of deepening the canal at Ching Ting.

CANTON'S NEW BUND.—The construction of this important work is now almost completed and the improvement is one of the most desirable features of development in this port.

PUKOW IMPROVEMENTS.—The government offices, wharves, and other public works completed at this place have been taken over by the Taotai. H. E. Tuan Fang is responsible for these necessary additions.

CHINESE NAVAL STATIONS.—General Li, who was commissioned to investigate and report on the most desirable location for naval stations, has reported favorably on Chefoo and Taku with the former more desirable.

KNOCHOW HARBOR WORKS.—The opening of this port has been abandoned for the present for the reason that the cost of constructing the necessary harbor works is said to be too great to be undertaken at present.

NEW BANGKOK DOCK.—A company has been formed with a capital of ticals 175,000 under the name of the Samsen Dock and Engineering Company, Limited, and will carry on a general shipbuilding and engineering works.

CATHAY HARBOR WORKS.—The fund raised by the Chinese of Cathay and Heungshan province for the purpose of constructing extensive harbor works at Cathay to eclipse Macao is reported to have reached the sum of $10,000,000.

YELLOW RIVER CONSERVANCY.—The Governor of Shantung recently submitted a comprehensive scheme for the conserving of the river and now it has been approved by the Board of Finance and work will be started at an early date.

MILITARY CONSTRUCTION IN THE PHILIPPINES.—The appropriation bill for the United States Army provided $350,000 for the construction of barracks in the Philippines and $250,000 for the construction of fortifications on the island of Corregidor.

PROPOSED HARBOR AT LIENSHANWAN.—Work will commence on an extensive harbor at this port next Spring. The scheme was drawn up by a British engineer and the report is favorable for this point as a commercial port to tap the trade of the West Liao region.

PORT FOR IPOH.—The Perak Chamber of Mines has asked the government for a port for Ipoh and Lumut in the Dindings was recommended as the most desirable location. At the present time Ipoh has to depend on Penang and Singapore for an outlet to the sea.

LIAO-HO CONSERVANCY SCHEME.—The consular body and the Chamber of Commerce of Newchwang has petitioned the Viceroy of Manchuria through the German Consulate for permission to organize a company for the purpose of conserving the Liao-Ho and to inaugurate a launch service.

NEWCASTLE (N. S. W.) HARBOR WORKS.—The building of two additional basins and an increase in the wharfage of this important harbor has been provided for to meet the large increase in the shipping of the port. It is also proposed to extend the northern breakwater at an expenditure of half a million. The output of coal handled at this port has increased during the decade to over 70 per cent. and the increase in facilities has not been by any means proportionate.

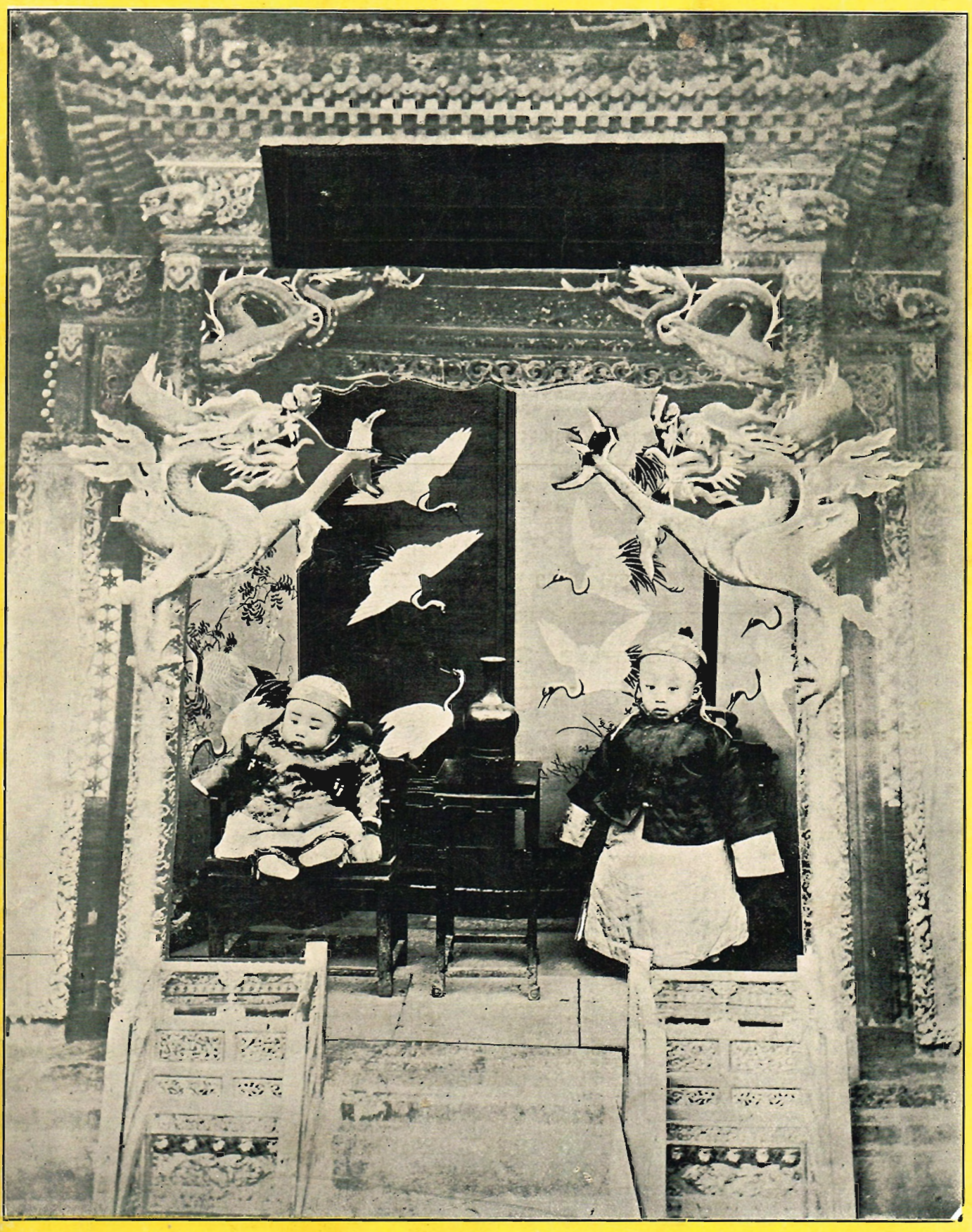
BARREN JACK RESERVOIR.—*Machinery and Hardware* announces that the contract for the construction of the wall of the dam was secured by Messrs. Lane & Peters and the price is £217,000. The work will take about four and a half years to complete. Three shifts of men, or 600 in all, will be employed continuously. The estimated cost of the whole of the work in connection with the reservoir is £810,000, and of the entire scheme including land resumptions and the railway, £1,800,000. The contractors' price does not include the cost of the cement, which is provided by the Government.

ILLUSTRATED FEATURES *The Hongkong Typhoon—South Manchuria Railway—Garden Bridge and Chekiang Road Bridge, Shanghai—John Brown & Co., Ltd., Builders of Big Ships—Antung-Mukden Railway*

THE FAR EASTERN REVIEW

MANILA SHANGHAI YOKOHAMA

VOL. V APRIL, 1909 No. II



THE BABY OCCUPANT OF THE DRAGON THRONE

HIS IMPERIAL MAJESTY, HSUAN TUNG, EMPEROR OF CHINA, AND HIS YOUNGER BROTHER HIS IMPERIAL HIGHNESS, PRINCE PU-CHIEH.—(The Emperor is standing.)

THE FAR EASTERN REVIEW

COMMERCE ✪ ENGINEERING ✪ FINANCE

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MR. Z. NAKAMURA,
President of the South Manchuria Railway Company

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THE SOUTH MANCHURIA RAILWAY

(AN APPRECIATION.)

(By Our Own Correspondent.)

Newchwang, December 27th, 1908.—The South Manchuria Railway, the only tangible asset left to Japan as a result of her victory over Russia; a railroad with the bridges dynamited, the rolling stock deteriorated, the stations demolished, the roadbed destroyed, its trade paralyzed, in fact, an utterly hopeless industrial wreck; this is the picture of the war-scarred road as it came to Japan, a road which, in its short history, has passed through all the gamut of legitimate railway adversities, and a storm of invective and abuse which would have swamped any ordinary enterprise.

The South Manchuria Railway.—Who has not heard of it, by its many synonyms! "The tentacle of the Octopus," "the strangler of trade," "the secret rebater," "the wicked discriminator," "the absorber of Manchuria," "the cunning agent of Japan's designs on China," "the ungrateful corporation which borrows money from its ally to spend it in America," "the soulless monopoly which exacts all and gives nothing in return," "the bar to further extension of Chinese railways," "the land grabber," "the mine robber,"—all these and some more added, according to the viewpoint and the supply of superlatives, sum up the popular foreign conception of this enterprise.

The South Manchuria Railway under former administration, especially under military rule, had many faults and drew on itself much deserved criticism. If there were anything the unskilled military operators omitted doing, if anything went wrong, if a porter or conductor looked crosseyed or a railway guard practised his poor English on the unsuspecting traveler in his desire to perfect his accent, or the soldier responded "Wakarimasen" to the crude efforts of the traveler to speak Nipponese, or anything else under the sun happened to the occasional traveler in the military zone, it was all wicked and intentional. Forthwith, the irate and insulted foreigner wrote a letter to his favorite newspaper in the treaty ports to prove that the wily Japanese and slippery allies were not playing the game, or carrying out the spirit of the alliance.

Were there a shortage of cars, it was charged up to deliberate discrimination. If the Japanese merchant at Newchwang or Dalny had his freight handled first, it were an imposition on equal rights and opportunity. Because the road preferred to haul freight to Dalny, 162 miles further than Newchwang, at the same rate to develop its own property, it was an unpardonable crime against the vested interests of the icebound port of Newchwang; because the directorate has two members formerly of the Mitsui's, ergo, it established conclusively the Mitsui's freight would have preferential treatment. But why prolong the tale of alleged iniquities of the sinful company! If a list were printed of all the crimes and irregularities which a soulless corporation might practice, and a composite photograph taken of the whole, the only suitable legend, according to the critics, would spell out THE SOUTH MANCHURIA RAILWAY COMPANY.

And the company, during all this torrent of criticism and abuse, has kept quietly at work "sawing wood." To paraphrase the remark of the late Speaker Reed, it has "stood silent, mute, speechless, dumb, and, in addition to this, it has not been saying a word."

My impressions of the "Octopus" were in line with the above before making a visit to Manchuria. After two months spent traveling throughout the Three Eastern Provinces, studying conditions and receiving first hand impressions, my viewpoint has been altered, and it may be that the devil is not so black as he is painted. While there is still considerable legitimate criticism which may be directed against the Japanese policy in Manchuria, I am safe in stating that, to-day, an impartial, unprejudiced observer who sees for himself, and draws his own conclusions, refusing to be guided by those who have axes to grind, can find no legitimate cause for complaint with the operation of the road as a public carrier. Eliminating international politics and friction with China, which will always be present while Japan controls the road, and confining comment to the railway and its work, there is much to be said in favor of the company, and praise for its enterprise. The administration has encountered and overcome obstacles, which reflect the highest credit on the officials, and has pursued its work, in the face of public distrust and hostile criticism, to a successful completion. The administration is entitled to the reward for its labors, and it ill becomes even its most bitter poltical and commercial opponents to withhold just recognition and praise for what it has accomplished.

When the South Manchuria Railway Company was organized, and the property taken over from the military authorities, it was a poor apology for a commercial road. The Russians, in their retreat, had destroyed the roadbed, dynamited the bridges, burnt the stations, withdrew the rolling stock, and did everything possible to make the line useless to the enemy.

The Japanese army had to relay the track to narrow gauge to suit the cars and engines hurriedly loaned by the Japanese lines, rebuild the bridges temporarily, repair the stations, and make herculean efforts to meet the enormous demands on its equipment to supply the immense army in the North. The road was constantly taxed beyond its capacity, and this condition prevailed until after evacuation. It was natural that the bulk of the freight should consist of military stores and vast quantities of Japanese products for their men, and it follows that a large amount of this merchandise found its way into the native stores.

With a limited equipment of rolling stock, narrow gauge at that, hardly sufficient to cope with their own traffic, is it any wonder that at times the foreign shipper at Newchwang could not get a car while his Japanese competitor could? This may be an infringement on the doctrine of equal rights, but it is human nature, and all the conventions and treaties in the world cannot provide against such a situation.

It was at this early stage of the road's history under Japanese administration that the cry of discrimination against shippers was first heard, and it continued over the entire period that the company was making gigantic efforts to widen its track, import new cars, and place itself in a position to handle the immense volume of freight. Criticism at such a time was of course admittedly unfair. Again, the most persistent and emphatic note of protest arises from the fact that the railway company, in order to build up its own terminal at Dalny in the leased territory, charges the same rate to the port that is made to Newchwang. Here is an interesting question which has many sides to it, but all we hear is the cry of Newchwang that it is being discriminated against and that such treatment is a violation of equal opportunities.

Dalny, the terminus of the road, is an ice-free port; Newchwang, the natural port of Manchuria, which formerly held a monopoly of the trade, is closed by ice for at least four months of the year. The latter port is the headquarters for foreign firms engaged in the Manchurian trade and has large vested interests, particularly British. The distance by rail from Newchwang to Dalny is 162 miles.

The freight rates on the South Manchuria Railway from the terminus at Changchung to either port is the same—yen 16.30 per ton on 1st class freight, 13.80 on 2nd class, 11.30 on 3rd class, and 8.80 on 4th class, while the car load rate is yen 13.50 for 1st, 11.00 for 2nd, 8.50 for 3rd, and 6.00 for 4th class.

The Newchwang merchants protest against the discrimination in favor of Dalny whose prosperity will be at their expense. But there is another side to the question. The great bulk of Manchuria's exports, in the shape of bean cake, go to Japan, whether shipped from Dairen or Newchwang, and the trade is largely in the hands of Japanese. The railway company, in order to build up its line and port, carries this immense amount of freight 162 miles further at the same rate. If the rate between Changchung and Newchwang is a legitimate one, it is evident that the extra haul must be at a loss to the railway. The rates between Mukden and Newchwang, where the Imperial Chinese Railway

come in competition with the Japanese line, are almost equal, which would indicate that the tariff throughout is based on fair returns.

In criticising the Japanese road for its discrimination against Newchwang, the interests of the shipping seem to have been lost sight of altogether. Just at a time when the producer must sell his crop, the port of Newchwang closes for the winter. Formerly, when this port monopolized the trade, there was no other remedy, and, willynilly, the traffic went to Newchwang to be stored in the godowns of the big hongs until navigation opened. With the opening of the railway and the outlet to the ice-free port of Dairen, the crop movement is facilitated, the farmer secures immediate value for his crops, and the Japanese market receives its beancake in time for fertilizing the ground for Spring planting. The loser is the Newchwang merchant who is deprived of his storage profits and income from handling the freight.

These facts are of course ignored by the vested interests of Manchuria and they call attention to the wickedness of the sly Japanese to arouse public sentiment against them. This is legitimate propaganda, but up to the present, while we have heard nothing but denunciation of Japan's policy, no one has pointed a way out of the difficulty. Would they have the South Manchuria Railway Company raise the freight to Dalny for the benefit of Newchwang during the summer months, and hold the same high tariffs during the winter months to the detriment of the shipper and the market while Newchwang is closed tight?

The tariff between Newchwang and Dalny ranges from Yen 8.10 per ton to yen 4.50 per ton regular and from yen 6.60 to 3.00 on car load lots. In this respect the South Manchuria Railway is like all souless corporations, and consults its own interests first, and these lie in Dairen. It's really remarkable how the Japanese have absorbed foreign ideas and tactics along with other good things.

Perhaps the European railway corporations are truly altruistic and never operate to their own advancement, but in America there are many similar cases to Newchwang and Dalny. If a railroad desires to build up its own terminal port, and charges reduced rates to the shipper for the privilege, the other ports may criticize and condemn, but that's all. The situation in Manchuria is similar, but what are you going to do about it?

Treaties have nothing to do with the case in point. Alliances, the open door, equal opportunities and all other conventions cannot alter the situation. There is only one remedy and that is for China to repurchase the line from Japan as soon as possibe, but that only solves the political side of the question. The situation of Newchwang under any management having the interests of the company at stake must always be the same, and as the years go by, instead of improving, it will grow worse. The immense future import and export trade of Manchuria will never be controlled by a port that lacks open communication the year round.

The heyday of Newchwang's prestige and prosperity is past. Any impartial observer not blinded by prejudice can read the handwriting on the wall. Cart traffic in winter and river junks in summer will postpone the inevitable day, but sooner or later the port will dwindle and lose its prominence. Both native politics and the railroads operate against it. The most important question now before the port is the conservancy of the Liao River, and a petition from the Chamber of Commerce and the Consular Body has been sent to the Viceroy asking that steps be taken to safeguard the waterway. The river is silting up and the junk-borne traffic from the upper reaches of the Liao is threatened. This in itself constitutes a grave danger to the commercial prominence of the port. This work, unlike the conservancy projects of Tientsin and Shanghai, will have to be undertaken by the Chinese authorities, and their hearty co-operation to preserve the vested interests of foreigners is well known.

The Chinese government has engaged the services of a well-known engineer, Mr. Hughes, to study and report on a certain harbor west of Newchwang which will be ice-free and open the year round. This gentleman is at present conducting a survey and making observations. A new port will then be opened and made the terminus of the Imperial Railway of North China, as an outlet for the winter traffic of such part of Manchuria as comes under the influence of that road. What of Newchwang then?

Perhaps the Chinese government will be guided by altruistic motives and contribute large sums to the conservancy of the Liao, for the perpetuation of foreign vested interests in Newchwang, and abandon the project for an ice-free port, in which all the property will be under its control. May be, but not very likely. The Chinese Government, like the Japanese Government, has absorbed a few ideas from foreign soulless corporations. If this project goes through, as appears probable, the foreign interests of Newchwang will be, between the Rising Sun and the Dragon, scorched on the one hand and bitten on the other. And then the discrimination we hear so much about on the side of Japan will have to be shouldered also by China, for if this port is to be built for political purposes to offset Dalny and be under the management of the Imperial Railways of North China, a government concern, it is natural to suppose that the Imperial Railway management will offer some inducement to shippers to build up the new Chinese port and make a profit on the expenditure. It's really up to Newchwang to protest.

But I am wandering away from the subject of this article, the original discriminator, etc., and have only digressed to point out how utterly wicked is the action of the South Manchuria Railway in its attitude towards Newchwang.

In the matter of car discrimination, here again the Japanese Railway Company was found guilty in the past, but there was a plausible reason as noted above. The car equipment was insufficient for the demand, and naturally the big Japanese firms who supplied the army had the preference. That was the first concern of the road, and of course considerable merchandise of Japanese origin found its way to the market, to the exclusion of other foreign goods. Here was a problem for the altruist to work on. Dalny was practically closed to foreign trade during military occupation.

The wharves were occupied by vessels carrying material for the army and the railway. Naturally every car that could be spared went to Dalny, and as there were no foreign houses in business, spare cars were loaded with Japanese merchandise products for the Manchurian market. Of course this was wrong, and opposed to all the ethics of brotherly love, equal rights, etc. The Japanese, although they were making desperate efforts to import new equipment for the standard gauge, and incurring heavy debts to purchase cars and locomotives, should have consulted the interests of foreigners in Newchwang, and spent millions or so in extra narrow gauge cars to handle their business, only to be later thrown away. The wharves at Dalny should have been cleared of vessels carrying heavy railway material for the road and room made for ships carrying foreign goods for the Manchurian market.

In our imagination, we can see the American, British, or other governments assuming this unselfish attitude under the same conditions.

At the same time, the passenger cars were also inadequate, small, stuffy, narrow gauge boxes, devoid of ventilation, refrigerators in winter and the other extreme in summer. Columns have been written about these awful conditions and impositions on the travelling public. The conductors were surly and impatient, the porters were rude, and the guards were overbearing and insulting. If there were any good feature about the road, it was overlooked entirely by the ever ready letter writer who signed his initials to the stuff sent to his favorite paper in the treaty ports of China.

And during all this time, the South Manchuria Railway officials said little, but redoubled their energies. An occasional defense was offered by their friends in Japan and elsewhere, but these of course emanated from subsidized organs, and were not worthy of credit. No, the pendulum had swung too far the other way. Nothing could alter the conviction of the average foreigner that Japan was not playing the game.

And now what is the situation. To-day the railway has been standardized throughout. Luxurious Pullman sleeping and dining cars and day coaches are at the service of the traveller. Hundreds of freight cars and locomotives are in operation; bridges have been rebuilt, stations remodeled, hotels are being constructed. An army of courteous employees have been trained and are now in attendance and the road and its service brought up to the highest standard. Everybody, it would seem, would be happy, but no, there is still trouble. The railway company is an ungrateful corporation. It borrowed its millions from London receiving about 95 and paying 6% and of course giving ample security, and then turns round and proceeds to spend the money in America.

The ubiquitous letter writer again works overtime to tell his troubles to his treaty port paper. He growls at the service, and the American Pullman is the last straw. The latest effusion to a Shanghai daily sums up the situation:

"In any case, and under the best conditions, a railway that deliberately exposes passengers to the unnecessary horrors and discomfort of the American corridor-bunk system, when all civilized people, unfettered by trusts and emigrant traditions have adopted sleeping cars that permit of quiet and privacy, owes an explanation to the public at large.

"And when you come to think of it, why should British capital have been spent by the South Manchuria Railway in introducing these trans-Atlantic atrocities?"

Why! indeed! we echo, and, immediately, the chorus from an old music hall ditty runs through my mind:

"I owe tin dollars to O'Grady,
He thinks he has a mortgage on me life,
He comes around to see me every mornin',
And at night he sinds his wife."

Nothing can satisfy the earnest growler who is looking for trouble.

Here was a situation where a railway needed cars, needed locomotives, needed everything, and needed everything quickly to cope with the traffic and appease the critics. It borrowed the money in London, paying good interest, and giving good security, and then looked round to see where it could get the equipment delivered in the shortest possible time. British builders could do it, in fact wanted to do it, offered to do it, but time was the essential quantity, and the contracts went to America where the material was either on hand or could be delivered quickly. Not that the material was any better. American material never did amount to anything outside the American continent, and it is really remarkable how the railroads there can operate over immense distances with the miserable equipment they use.

The Japanese made an awful blunder here and nearly broke up the alliance. But there is this satisfaction for the critics. The equipment purchased in America is of course very inferior and will soon wear out. The South Manchuria Railway Company will then have to borrow a few more millions and with plenty of time for delivery it will of course purchase really serviceable cars and locomotives and bring about a rapprochement with the disgruntled ones.

But here I am digressing again, and wandering from the subject of the wicked discriminator, etc., etc. All this discrimination in cars is of course ancient history. What is the situation to-day? The writer has made many anxious inquiries throughout Manchuria trying to secure evidence of this crime of car discrimination, but without success. Everybody is being served as rapidly as possible, and, in Newchwang particularly, the railway company seems to be striving to gain the good will of the foreign shipper.

The most serious charge against the road was an incidental remark from the Newchwang manager of the greatest corporation in the world, the so-called original "Octopus," who claimed that he had to pay his freight in advance while the Mitsui and others had a current account payable every two weeks or monthly. This, of course, is unfair competition, and real discrimination against the poor old Standard

Oil Company which needs the money, and it is probably keeping the good people at 25 Broadway awake nights.

And speaking of the Mitsui firm, it is also claimed that the house has two of its men on the Board of Directors, and the natural inference is that the Mitsui's freight receives preferential treatment, and again we have the cry of discrimination from freight shippers. It is a fact that two of the best men of the house of Mitsui are directors of the railway, and from personal observation it might easily be concluded they were evidently placed there because of their business qualifications and fitness for the job. The fact is lost sight of, that the South Manchuria Railway Company is a stock company, also that the House of Mitsui is the strongest, wealthiest, and most influential concern in Japan. Its ramifications are many, and it is represented in some of the leading industrial concerns in Japan besides being allied with other strong aggregations of capital.

When we stop to consider that only Japanese or Chinese can hold stock in the company and the Chinese refrained from subscribing it left the stock to be taken up in Japan. It occurs to us as a logical inference that the House of Mitsui, being the strongest firm in Japan and allied to many other large corporations, subscribed for and now control a certain proportion of the stock, and it is not unlikely that the house has adopted the well-known foreign custom of having theirs hares represented on the directorate. This is really unpardonable on the part of the Mitsui people, and the practice should be discontinued and discouraged. Such tactics might be tolerated or overlooked elsewhere, but it is positively wicked for those so young at the game to ape their elders.

And now we come to the real bona fide out and out old time discrimination. It is a hard nut to crack, a difficult problem to solve. In America they are still pondering over the subject and striving to down the rascally corporations. The Americans thus have troubles of their own, while out here, the same question becomes mixed up with the open door, equal opportunities, sovereign rights, etc., until it becomes so confused that it takes on the status of a casus belli, or something as bad.

The South Manchuria Railway Company owns a coal mine at Fushun. At least it is in possession. And this is one of its principal assets. It's a long story about the coal mine, but to clear up matters it ought to be presented. The Chinese say it belongs to them. The original concession was granted to two Chinese merchants. One was a good business man and the other was not, so the one that was not sold out to the one that was and became eliminated from the enterprise. The good merchant operated the mine and sold his product at Mukden and neighboring towns, making a good profit. Then came the Russian railway and its companion, the Bank, and the miner sold his coal to the railway at a good profit. But the water came up in the shaft and prevented operations until pumps could be secured. The Russo-Chinese Bank loaned the miner about 40,000 roubles with which to purchase pumping machinery and restore the mine to a working basis. One of the guarantees for the loan was that the superintendent and other principal employees should be Russians, to which the Chinese owner acceded. And then work was resumed, more coal produced, and a good market found with the railway.

Then came the war, and the retreat of the Russians. When the Japanese advance reached the mine, they found Russians in charge and coal ready for the use of the railway.

Now the Japanese simply say that the mine was being worked by Russians, supplying coal to the Russians. They found Russians there when the army arrived, and therefore the mine was Russian, and so belongs to the Japanese as spoils of war. The Chinese government has remonstrated and attempted to submit the question to arbitration. The Japanese Government simply refuses to discuss the matter and says in effect to China, "You cannot prove to us that the mine was not Russian."

In the meantime the mine is made part of the Government assets in the South Manchuria Railway Co. and forms part of the security for the loans for the reconstruction of the road. The equipment of the mines has been increased to secure an output of 3,000 tons a day, and the railway is being double tracked to handle the enormous tonnage. So far as Japan is concerned, it is apparently a closed incident, and what is China going to do about it?

Now the important phase of the situation is that Japan has a coal mine, on which she has spent millions, and expects to secure commensurate profits. The mine is a part of the railway and here comes the old, old story. What chance has any other coal mine along the railroad of competing? There are other mines at Liaoyang, but it is cheaper to ship by cart than by railway. There are other mines but their product is debarred from competing with the railway mine. When we remember that railway companies operating coal and iron mines in America have discriminated against the independent operator until the matter was made the subject of congressional investigation, and even today there is small chance of a square deal under such conditions, we can appreciate the situation in Manchuria where there is no supreme law but that of the stronger to insure fair treatment.

This matter has not yet reached an acute stage in Manchuria for the independent mines are a few small Chinese affairs, but the seeds are planted for a crop of trouble in the future, and the world will again hear of discrimination, to which will be added rebates and all the other corporation crimes in restraint of trade.

As to rebates, this is another sore point for the foreign shipper. You can hear various statements about secret rebates to favored Japanese firms. Perhaps they are true. I have heard of secret rebates before. So has everybody in the United States and out of it. It is taken for granted that many of the largest trusts have been fostered and nourished on this system and have used their advantage to cripple the independent or small producer. It is deplorable that the Japanese should so far forget themselves to adopt a habit which is very bad form now in the United States. The trouble has always been the impossibility of securing evidence to convict. The Sherman law in America keeps the rebaters hustling nowadays to devise new evasions. The same situation exists in Manchuria. The average foreigner or Chinese merchant will confide to you that the big Japanese firms are receiving secret rebates, but it is extremely difficult to secure corroborative evidence. In fact, I know that this matter was thoroughly investigated by a foreign government official in Manchuria who reported to his superiors that no proof could be brought to support the allegation.

The Railway Company gives rebates to any firm whose freight bills exceed yen 100,000 per annum. The printed regulations concerning rebates are printed for public distribution and we quote from them the rates to and from Dairen, in regard to Liaoyang, Mukden, Tiehling, and Kwan Chentze and to and from Ying-kau to Dairen, Liaoyang, Fengtien, Tiehling, and Kwanchentze as follows:

TO AND FROM DAIREN:

"TON" RATE (per ton)

	1ST CL.	2ND CL.	3RD CL.	4TH CL.
Liao-yang.	G. Y 8.10	G. Y 6.90	G. Y 5.70	G. Y 4.50
Feng-tien (Mukden)....	9.40	8.00	6.60	5.20
Tiehling...	10.00	8.50	7.00	5.40
Kwang-Cheng-tzu.....	16.30	13.80	11.30	8.80
Yin-kau New-chwang.	8.10	6.90	5.70	4.50

CAR-LOAD RATE (per ton)

	1ST CL.	2ND CL.	3RD CL.	4TH CL.
Liao-yang.	G. Y 6.60	G. Y 5.40	G. Y 4.20	G. Y 3.00
Feng-tien (Mukden)....	7.70	6.30	4.90	3.50.00
Tiehling...	8.50	7.00	5.40	3.90
Kwang-Cheng-tzu.....	13.50	11.00	8.50	6.00
Yinkau New-chwang.	6.60	5.40	4.20	3.00

TO AND FROM YING-KOU (NEWCHWANG):

"TON" RATE (per ton)

	1ST CL.	2ND CL.	3RD CL.	4TH CL.
Dairen....	G. Y 8.10	G. Y 6.90	G. Y 5.70	G. Y 4.50
Liao-yang.	3.90	3.30	2.70	2.10
Fengtien..	7.15	6.05	4.95	3.85
Tiehling...	10.00	8.50	7.00	5.40
Kwang-Cheng-tzu.....	16.30	13.80	11.30	8.80

CAR-LOAD RATE (per ton)

	1ST CL.	2ND CL.	3RD CL.	4TH CL.
Dairen...	G. Y 6.60	G. Y 5.40	G. Y 4.20	G. Y 3.00
Liao-yang.	3.30	2.70	2.10	1.50
Fengtien..	6.05	4.95	3.85	2.75
Tiehling...	8.50	7.00	5.40	3.90
Kwang-Cheng-tzu	13.50	11.00	8.50	6.00

Regulations Concerning Rebates.—ART. I. The South Manchuria Railway Company will allow rebates at the following rates to any one person or firm who pays a sum of freight over -Y-100,000 every year commencing on 1st October and ending on 30th September of the following year:—

Over -Y-100,000....	under -Y-150,000.....	3%
" 150,000....	" 200,000.....	3½%
" 200,000....	" 250,000.....	4%
" 250,000....	" 300,000.....	4½%
" 300,000....	" 350,000.....	5%
" 350,000....	" 400,000.....	5½%
" 400,000....	" 450,000.....	6%
" 450,000....	" 500,000.....	6½%
" 500,000....	.....	7%

ART. II. Those desirous of qualifying for the allowance of rebates as provided in the preceding article shall present an application in the company's form and shall receive the recognition of same by the company.

ART. III. The allowance of rebates is subject to the following conditions:—

The Company reserves the right to cancel its recognition given to a client, whenever it considers him to have acted in any manner prejudicially to the interests of the Company.

ART. IV. The rebates due will be paid on the elapse of 6 months after the end of every one year's term, namely on 31st March.

ART. V. In case a client qualified for the rebates wish to appoint an agent or agents for the shipment and delivery of goods, his or their names and addresses shall be notified in writing to the company.

This seems fair enough, but the system is a bad one and just now in the United States it has made a number of undesirable citizens out of some prominent captains of industry. The difference between the 3% rebate to the small shipper and 7% to the big shipper amounts to a fair profit to the latter. It opens the way, however, for a profitable freight brokerage business for the Japanese, under which the small shipper may secure a partial reduction by having the agent handle his freight.

The tendency of such rebates is to give the big shipper a decided advantage over the small operator, and the firm controlling the export trade in bean products and the import trade in cotton goods, rice, matches, and saki, has an assured 4% and possible 7% over the small trader. The exports of beans and bean cake through the port of Dalny for the six months ended December 31st, 1907, amounted to approximately 70,000 tons, or approximately, say 140,000 tons for the year. The average rate on this class of freight from stations beyond Liaoyang is about yen 7.00 per ton in car load lots, a total of yen 980,000 from this product alone.

As Japan consumes nearly all the bean products, that trade will necessarily remain under the control of their nationals and insures a 7% rebate in freight. There seems to be no provision against pooling and it seems feasible for the foreign importers to pool their interests and also secure the maximum rebate.

There is no attempt made to conceal these rebates. Every shipper can procure the freight schedule from the company and take measures to secure the maximum reduction. But the cry of discrimination is abroad and the Chinese and foreigners point to the preferential treatment accorded a few large Japanese firms who control the trade, making it impossible for them to compete, without sacrificing their profits.

Here is a situation not unlike many other similar ones in other parts of the world. In America, while there is no actual evidence of secret rebates to the big shipper, yet the public is convinced that such rebates are given. The steamship lines favor the best customers and grant big discounts for cargo lots; the Shipping Ring at London is accused of granting secret rebates to favored firms in Singapore, and the other firms are protesting against such treatment.

Once again the question may be asked, Well, gentlemen, what are you going to do about it? Which foreign nation can approach Japan with clean hands and remonstrate? The United States? Hardly. Americans invented the system and Japan has simply improved on it. Great Britain, the nation most vitally concerned, ought to do it. The Royal Commission on Shipping Rings now investigating the Conference rebates will hardly dare antagonize the most powerful shipowners of Great Britain, even though Singapore call aloud for relief and punishment for the wicked rebaters. The Jappanese firms in Singapore have already rights under the most favored nation clause which deserve serious consideration from the Royal Commission.

While waiting for the next move, the South Manchuria Railway Company is working overtime hauling immense quantities of freight, paying attention to business and making profitable returns for the shareholders. If the employees of the road were surly and uncivil in days gone by, it is not so now. I traveled from Dalny to Mukden, Mukden to Changchun, back to Mukden and Dalny, and again to Newchwang, always on the Express, stopping off for a few days at the larger towns. In a life filled with travel, I do not remember of a more enjoyable, comfortable, or delightful experience in a railroad train. The cars are regular Pullman's, bought in Chicago and set up here by Pullman's men, comparing favorably with those on the best roads of America. They represent comfort to the American, but to the European, who desires privacy, they are an abomination. If the railway company would publish in a conspicuous place that there are two private compartments to each sleeping car, for those who wish to pay the extra charge, it would relieve the road of a lot of criticism, and spare the contented traveler from listening to the explosions of wrath from disgruntled continentals who are forced to sleep with the common herd in the beastly American corridor bunk car fit only for emigrants.

The whole trouble in this respect lies in the fact that nearly all the passengers on the South Manchuria Railway are Europeans who have never previously been introduced to a Pullman sleeper. The Pullman sleeper habit is an acquired vice. It takes time to develop any appreciable qualities in the processes provided by Pullman to tuck the traveler away for the night. The South Manchuria Railway Company should issue with each ticket full instruction as to good form, to direct the behavior of passengers in such a car. The American, as a rule, recognizes the rights of others and especially when he is confined to the limitations of a Pullman. He does the regulation acrobatic "stunt," get under the curtain, and after indulging a few contortions in disrobing, lies down and goes to sleep peacefully. Some Europeans disrobe in the corridor, make a lot of unnecessary noise and go behind the curtains muttering all kinds of direful threats against the Japanese in general for buying the abominable cars, and against the Americans in particular for inventing them.

But they seem to be happy in the morning after a comfortable night's sleep in the "bunk," and when the beds are made up are quite satisfied with the car. The dining car, however, is a winner. Whatever maledictions have been called down on Pullman for inventing the sleeper, have been offset by the blessings on the dining car. The meals are excellent, the prices moderate, and the attendance all that could be desired. To the chronic growler, however, there is always some flaw in the service.

My experience is that the treatment and service on the South Manchuria Express cannot be excelled on any train in the world. The conductor, guard, porter, and table boys are obliging and courteous, and go out of their way to serve passengers.

The simple, expeditious, efficient American baggage check system was recently adopted by the company. This is a blessing and Russia and China could readily take a lesson, and do likewise to advantage. There is no hideous weighing of trunks to squeeze a few yen from the passenger for excess baggage, nor does the passenger have to follow up his trunk to see that it gets placed aboard the train, and then have to watch it at every station to see that some one does not appropriate it.

The Japanese are exerting every effort at the present time to overcome the effects of past management and criticism of the road. It is only since November that they have been able to show results and make good. Now they are running a railroad in earnest and looking for the support of the traveling public. They are entitled to the good words and patronage of the public for the fine service.

I left Dalny on the Express, Christmas morning, for Newchwang. There was only one other foreign passenger on the train, the Russian Consul who was on his way home, and two Japanese, one a newspaper editor in Dalny, and the other an army officer. Probably, I was the only one who had paid a fare.

As the train pulled out of Dalny, I went into the dining car. To my great surprise and delight, the car was a mass of decorations. Festoons of silk ribbon draped from window to window and arched across the top, banks of flowers and greens, silk flags all arranged most artistically, gave the whole interior a most decided cheerful holiday aspect. Once before I had traveled in one of the famous limited trains in America on a Christmas Day, but there were no decorations, nor any attempt made to make the homesick traveler feel brighter, not even the dinner varied much from the usual menu, but the attendants were there with palms outstretched waiting for the Christmas present just the same.

The contrast was marked. The Christmas dinner served on the train in "heathen" China was a real Christmas feast and the waiters tried to make it pleasant and cheerful. There were no hints for tips from any member of the crew and when I gave the boy some yen for a Christmas remembrance, it was a long time before he realized that it was all for him.

That train probably ran through to Changchun after I left at Tashihchao with only one Christian passenger. After that can anyone accuse the South Manchuria Railway Company of discourtesy or lack of attention to their passengers? I consider it one of the most delicate compliments that could be paid to the foreign traveler.

Fancy a railway train being decorated in Europe or America for a Japanese or Chinese religious holiday. With all our boasted enlightenment, we have not reached that stage.

OBSTRUCTIVE ATTITUDE OF THE PHILIPPINE ASSEMBLY

After eight years of persistent work in the interests of the Philippines and their people, during which time he has extended to them the greatest degree of participation in local government, President Taft finds the body of legislators, for which his liberality is responsible, arrayed against him in his effort to find a market for Philippine tobacco and sugar in the United States. And, indeed, up to the time that the Payne Bill was introduced in the Congress, there was every reason to believe that any legislation tending to secure a market for Philippine products would surely receive unanimous support from the Filipino deputies. But no sooner did it become apparent that there was prospect for action providing for a limited free entry of sugar and tobacco into the United States than a resolution directed against the legislation was unanimously adopted by the Assembly.

The Payne Bill provides for the free entry of all products of the Philippine Islands with the exception of sugar and tobacco, the latter being restricted to a limited amount yearly. It also provides for the free entry of American manufactures and other products from the United States into the islands. In making an excuse for their action the deputies declared that, by opening the country to American enterprise, it would endanger the prospect for independence and that in addition to this threatened danger, the free entry of American goods into the islands would result in a deficit in revenue. But even a joint resolution, substituted by the Commission, providing in a proposed recommendation that provision be made by Congress to cover the deficit, was turned down by the anti-Taft assembly. The members stuck to the excuse that, with exploitation by American capital, the islands would never see the dawn of independence.

The bill in amended form has passed the House of Representatives in Washington and there is prospect that it will become effective even if amended further. Rice has been removed from the list of products to be admitted free into the United States and it may be that other interests may make a hard fight against the bill and secure some changes, but that it is on its way to final passage, is the general belief in the more optimistic Philippine circles.

There is also reason to believe that President Taft is far from pleased with the attitude of the Assembly, and, in view of the many protests from all parts of the islands against that body's attitude, there may be some action taken by Congress restricting its powers.

The only hope for the islands rests in securing a market for their sugar and tobacco, not that the United States would necessarily be a large purchaser but that China would have to meet New York prices less difference in freights, etc. Already capital is looking for investment in the sugar industry in the islands, provisionally upon the passage of the Payne Bill, and it is expected that other industries, backed by American and foreign capital, will surely follow. To allow any body to interfere with any such prospect would prove a most serious mistake of the administration and we do not believe that it would stand for any such attitude of obstruction.

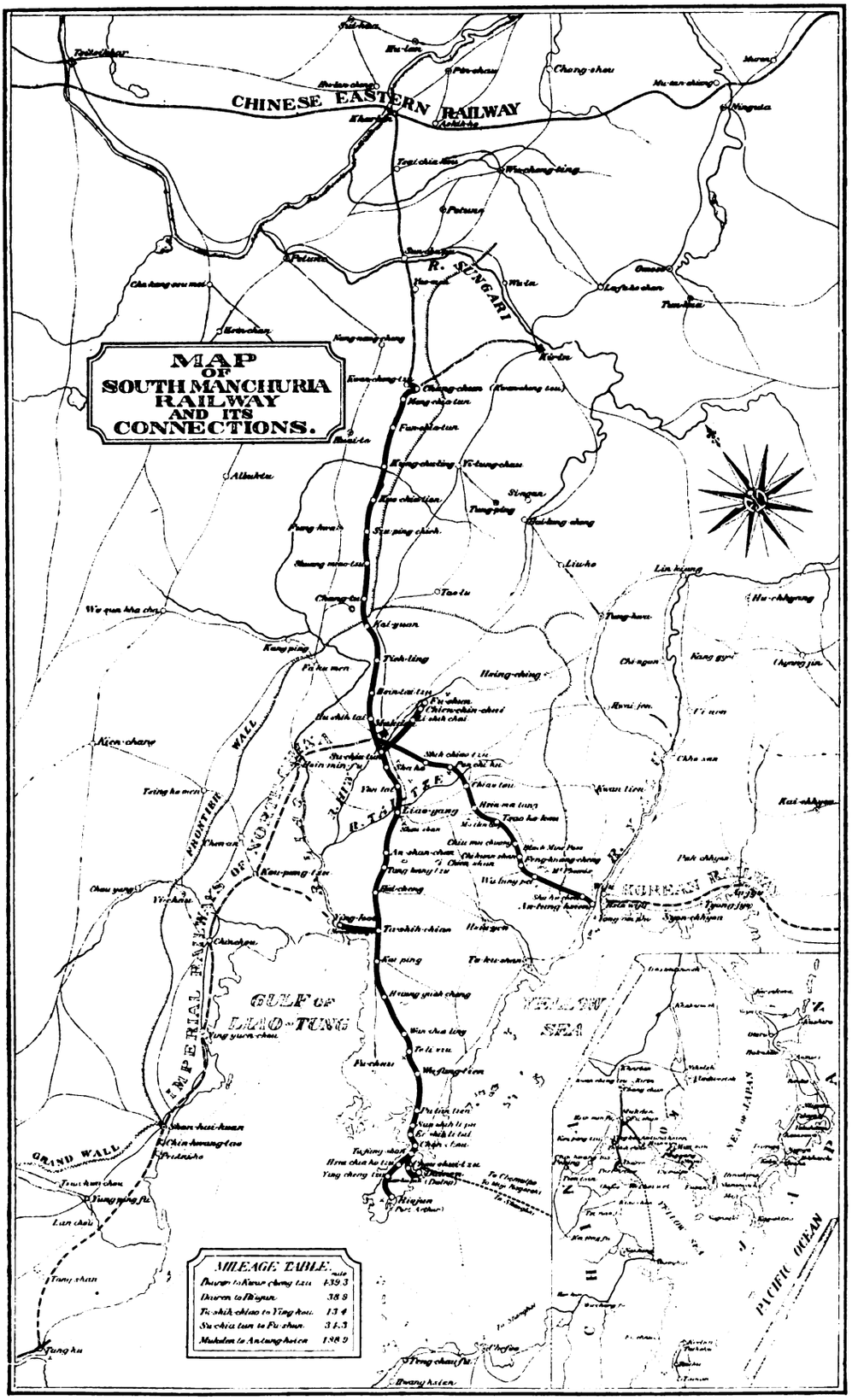
Very fortunately for the Philippines and those who have been working in their interests, Congress has authority to legislate as it sees fit without consulting the wishes of the irresponsible politicians of the archipelago.

FAILURE OF MANILA STRIKE

The successful struggle of the Manila Electric Railway and Light Company against its striking employees has had the desired result of putting a quietus on the agitation that but recently threatened to seriously disturb industrial conditions and result in great hardship on the working classes. The firm position taken by the company from the initiation of the strike, its persistency in providing ample transportation for the public, under the most trying conditions, and its refusal to recognize the alleged union or the agitators controlling it, were responsible for its complete victory. The incarceration of an agitator, one Gomez, for addressing threatening letters to business firms and the fact that the prison authorities obliged him to earn his daily bread by the sweat of his brow for the first time in his life, has also had the moral effect of silencing a large *junta* of these gentlemen. The result is that all the motormen are out of a job and must wait for vacancies in the service. General Manager Graves has offered to show a preference for men of large families and those who were intimidated by the strikers and forced to quit work against their will, but all must begin at the foot of the ladder again.

Had the company shown any weakness or compromised in any measure, it is certain that by this time every industry would have been affected. That the company spared no expense or loss to make the victory complete, and thus saved the community of Manila millions of dollars, should be gratefully acknowledged by all the other industrial institutions, who have been thus protected.

As for the agitators who were misleading the workers in all branches of activity, the fate of Gomez has taught them a lesson, and the misguided, who are now suffering, have for the time lost faith in those to whom they entrusted their opportunity to earn a competency, and who have so signally failed them.

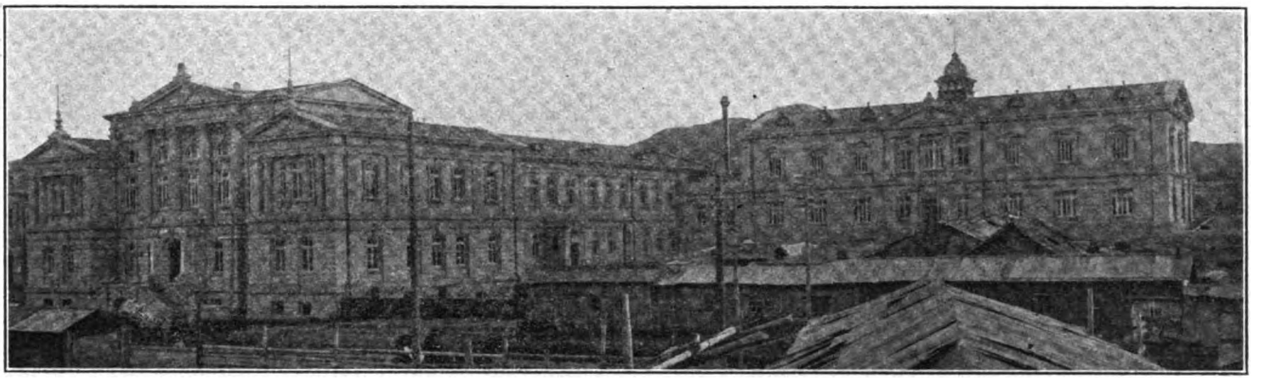

MAP OF SOUTH MANCHURIA RAILWAY AND ITS CONNECTIONS.
CHINESE EASTERN RAILWAY
R. SUNGARI
GULF OF LIAO-TUNG
YELLOW SEA
IMPERIAL RAILWAYS OF NORTH CHINA
FRONTIER WALL
GRAND WALL
KOREAN RAILWAY
PACIFIC OCEAN
MILEAGE TABLE.
Dairen to Kwan cheng tzu 439.3
Dairen to Hiojan 38.9
Tu-shih-chiao to Ying kou 13.4
Su chia tun to Fu-shun 34.3
Mukden to An-tung-hsien 188.9

HISTORY OF THE SOUTH MANCHURIA RAILWAY

The South Manchuria Railway between Kuangchengtzu, Dalny, and Port Arthur was transferred to the Japanese Government by Russia at the close of the Russo-Japanese War. The organization of a company to operate this line was authorized by an Imperial Ordinance issued by the Emperor of Japan, and in pursuance of the provisions thereof the Organization Committee held its first meeting on the 10th of August, 1906.

It was decided that the head offices of the Company should be located at Tokyo, with a branch office at Dalny, that the Company should be capitalized at Yen 200,000,000, the Government to receive Yen 100,000,000 in shares for

(1) Railways already constructed (excluding the rolling stock now in use, rails of the Mukden Antung-hsien light railway and accessories).



SOUTH MANCHURIA RAILWAY'S GENERAL OFFICES AND ADMINISTRATION BUILDING AT DALNY, RECENTLY COMPLETED

(2) All property accessory to the above railways (excluding the property in the Leased Territory which shoud be specially designated by the Government.)

(3) Coal mines at Fushun and Yentai.

It was also provided that interest, guaranteed by the Government, is to be paid at the rate of 6% per annum on the paid up capital of the Company for fifteen years after the registration of its organization and that the subsidy shall in no case exceed 6% of the paid up capital, that the subsidy with an interest of 6% shall be made a liability of the Company to the Government, repayable with the excess of the Company's dividends above 10% per annum on all shares.

There were, when subscriptions were called for in the autumn of 1906, 11,467 applicants for 106,643 418 shares. Of these all applications for less than ten shares were rejected, leaving 11,356 applicants for 106,643,016 shares or 106,544,016 shares in excess of the 99,000 to be allotted, the apportionment being as follows:—

	Shares.
Apportioned by calculation.....	94,333
Apportioned by lot.....	4,667
Directors' shares, reserved.....	1,000
Total	100,000

The Government's portion, Yen 100,000,000, was regarded as paid up, and the actual subscribed capital of the Company is now Yen 120,000 000.

NEW JAPANESE BARRACKS FOR THE RAILWAY GUARDS AT MUKDEN

Although it was provided that the South Manchuria Railway should be a Chinese-Japanese organization, the Chinese failed to avail themselves of the opportunity to purchase shares and protested against the organization of the Railway on the grounds that the Articles of Association were inconsistent with the terms of the Peking Treaty signed in December 1905, and claimed that Japan had included in the list of "property" of the South Manchuria Railway Company certain branch lines and collieries, notably the Yentai and Fushun Mines, which they claimed, although a certain amount of Russian capital was used in their operation, were Chinese private property.

Administration.—In view of the varied functions delegated to the Railway Administration as well as the intimate association of this organization with the Japanese Government, the political significance of its policy, and the extent to which its control of the communications of southern Manchuria may affect the commercial development of this region, can scarcely be overestimated.

The Railway Company is empowered to:—

(1) Engage in the following business for the benefit of the Railway:

(a) Mining, especially the working of the Yentai and Fushun collieries.

(b) Marine transport.

(c) Electric works.

(d) Sale on consignment of the principal goods carried by rail.

(e) Warehousing business.

(f) Construction and administration of land and houses on the land belonging to the railway.

(2) Make the necessary provisions for education, health, and engineering work within the limit of the land belonging to the railway.

(3) Collect fees from the inhabitants within the limit of land belonging to the railway to defray expense of above.

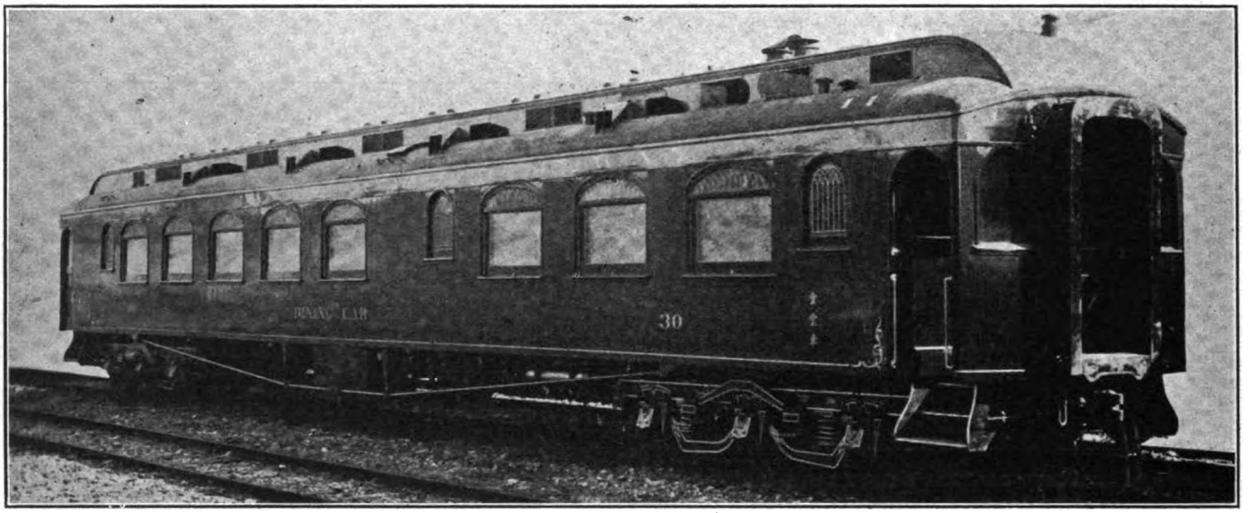
The establishment of a Japanese settlement at Newchwang in an area not as at Liaoyang, Mukden, and Tiehling, acquired from the Russians, but purchased from the natives, with an administration formerly controlled by the Military Governor of the Leased Territory, was perhaps the first instance of the application of the powers conferred in (2) and (3). If the tracts varying from one thousand to two thousand three hundred acres at the above mentioned cities had been put to a similar use, the Railway Company would have assumed the dignity of a Colonial Administrator, and this circumstance drew on the Japanese much adverse comment.

The Railway is protected by a force of approximately fifteen thousand men stationed at different points along the main and branch lines, and quartered not only in barracks near the stations, but within the neighboring cities as well.

The policing of the Railway is under the supervision of the Governor General of the Leased

Territory who has charge also of an elaborate postal and telegraph system. The Manchurian Consular Courts have civil jurisdiction in the Railway Settlements.

The President of the South Manchuria Railway Company receives Yen 50,000 per annum, the Vice-President 30,000, the six Directors 12,000 each (six thousand salary and six thousand allowances), the Chief Secretary 10,000, and five overseers 1,000 each. At first the total number of officials and Japanese employees was 7,860, giving an average of approximately eleven per mile, and the monthly pay roll amounted to Yen 281,552.35. This force has since been greatly reduced, and the road is now being run on strict business and economical lines. At present nearly all the construction work is being carried on by Chinese, as the Japanese laborer can not compete with him.



PULLMAN DINING CAR ON THE SOUTH MANCHURIA RAILWAY

Equipment.—The military authorities, formerly in control of the Railway, declined to furnish information regarding the rolling stock on the line. Notwithstanding the demand for shipping facilities and the stagnation of freight at Tiehling and other northern points, numbers of cars were returned to Japan, and Japanese as well as foreigners and Chinese complained that the Administration, in its haste to reduce the rental paid to the Railway Companies in Japan for the use of their carriages, sacrificed large profits and seriously interfered with trade. Until steps were taken to widen the gauge and new rolling stock imported, there was no amelioration of these conditions.

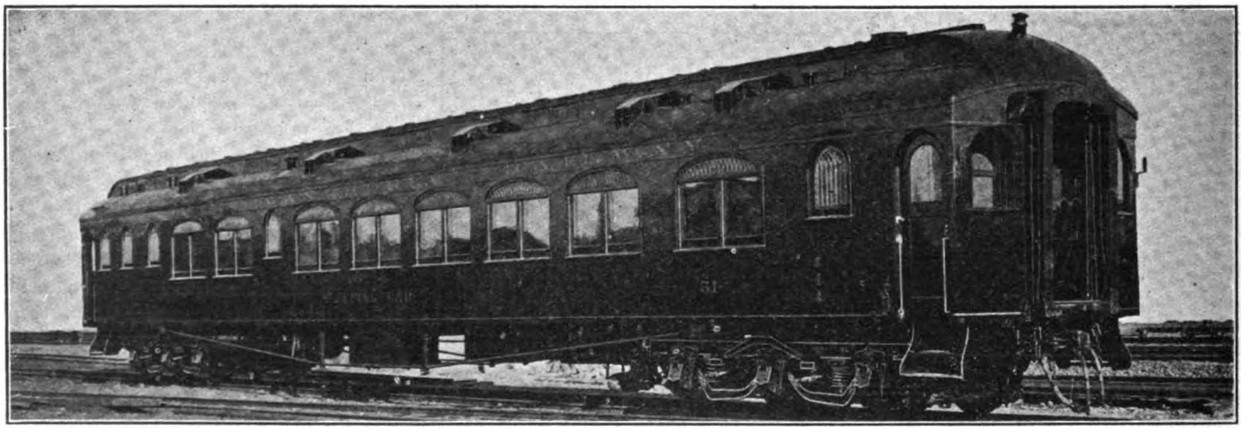
Seventy box and open freight cars and second and third class passenger cars were all that were in use at one time, while the company was at work standardizing the line and awaiting new equipment from America. It was during this period that the criticisms of discrimination were most severe and many complaints found their way into print without any serious effort being made to analyze the underlying causes. While there was enough ground for some criticism, yet it is unfair to attack an enterprise for incompetency, while it is striving to get on its feet.

There are four repair shops at Dalny, one at Liaoyang, three at Kuangchengtzu, and one at Port Arthur.

There are 781 railway buildings, including watch sheds, etc. Practically the only substantial buildings were constructed by the Russians and for a long time were in bad condition, and the repairs attempted by the Japanese were of the most temporary character. Tile roofs damaged by shell fire were roughly patched or where the original covering was wholly destroyed galvanized iron was substituted. Structures that were gutted by fire were lined with a wooden shell eight or nine feet high Windows were boarded or the broken panes covered with paper and months of rough usage and careless treatment did not improve the condition of buildings which the Russians attempted to destroy as they retreated toward the north.

Here again the critic found fault with the administration, but the stations have since been made as comfortable as possible, and new edifices are going up at the most important places. The railway has confined its energies first to improving the track and rolling stock, so that they could handle the traffic, which would make new stations possible.

There are at the present time 254 permanent and 24 temporary bridges. The former are of no particular size north of Mukden. As the Russians dynamited most of the larger structures between Mukden and Ssuoingkai they must necessarily be rebuilt.



PULLMAN SLEEPING CAR ON THE SOUTH MANCHURIA RAILWAY

The old roadbed was well laid and the embankments in good condition. Sixty-five pound rails were used and the ties are still serviceable.

It was stated that three years would be required to widen the gauge, from 3′ 6″ to 4′ 8½″. This has been completed in half the time, and the company is at present double tracking the work from Dalny to Suchiatun to handle the coal output of Fushun.

Operation.—The area traversed by the South Manchuria Railway is one of the richest agricultural in the world, populated by a hard working and thrifty people who as pioneers and settlers are more open-minded than their fellow countrymen in China proper. Each year brings thousands of immigrants from the provinces of Chihli and Shantung, and this human tide is gradually flooding the heretofore uncultivated plain of Heilungchiang and Mongolia, penetrating the forest-clad hills along the Yalu and peopling the valleys in the mountains that rise to the east of the great Liao Plain.

There are a number of prosperous cities, each having served as a market and distributing center for the country in its immediate vicinity, located at intervals of between thirty-five and forty miles, along the railroad between Newchwang and Changchun.

Tungchiangtzu and Fakumen, the former on the banks and the latter not far from the Liao River, and Tiehling which is on the river and railway as well, have been the great centers of the bean trade. Thousands of carts each winter brought their loads to these points for storage and shipment south when the river opened in the spring. Mukden has been the principal fur market and Changchun (Kuangchengtzu) the great distributing center for northern Manchuria and Mongolia.

Ordinary goods were charged 5 sen per ton per mile between Tashihchiao and the north, and between that place and Newchwang, while the same articles may be carried between Tashihchiao and Dalny for two sen per ton per mile. There are no positive proofs that preferential rates have ever been granted Japanese merchants, but there are indications that they have received privileges not accorded Chinese and foreigners, and the discrimination in favor of Dalny, at which place under the old military administration it was practically impossible for a foreigner to engage in trade, has in itself been the cause of much complaint on the part of the foreign merchants of Newchwang.

It has been stated that no single line of Railway can carry the annual Manchurian bean crop to the seaboard, nor can the South Manchuria Railway Company ever be able to furnish adequate transportation facilities. There was in fact, at one time, so much dissatisfaction with the management of the line and the delays of freight in transit that a number of shipments were made from and to Newchwang by cart for not only is the cost of transportation slightly less but delivery may be expected within a certain definite time.

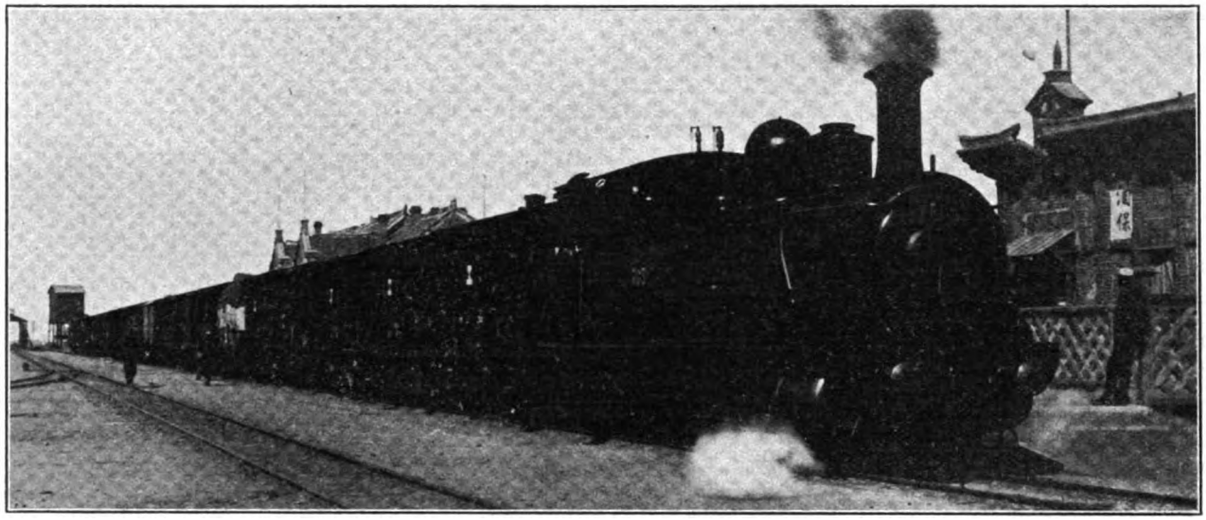
This condition can not be urged as an argument against the road at present, for, with the new equipment, every effort is being made to cater to foreign shippers at Newchwang, and at the same time handle the numerous freight from the north.

The Antung-Mukden line does not pay running expenses at the present time, but it is hoped that it will ultimately become profitable owing to the fact that it will form part of the through trunk line to Fusan and will be of great service in developing the mineral resources of south-eastern Shengking.

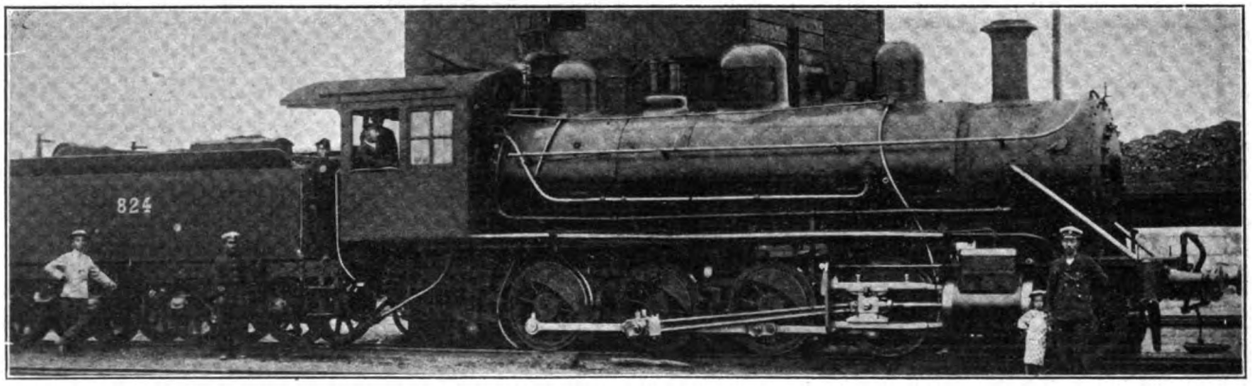
There are now 187 miles of track but the line will be considerably shortened when the gauge is widened and the final roadbed constructed.

The Yentai and Fushun branches, respectively 14 and 25 miles in length, connect the coal mines at these places with the main road.

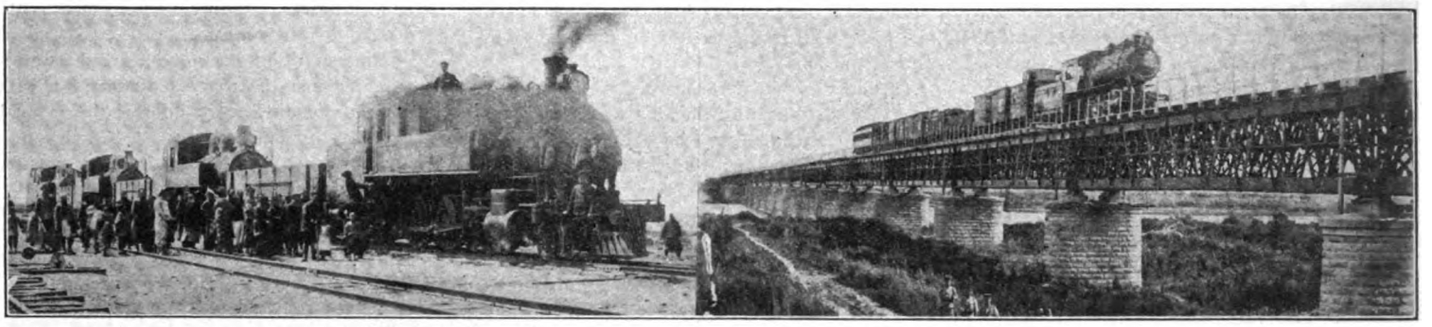
A railway probably will shortly be constructed between Changchun (Kuangchengtzu) and Kirin, and it is stated that a company has already been organized with a capital of 4,000,000 Taels, and has engaged Japanese engineers to undertake the preliminary surveys.



SOUTH MANCHURIA RAILWAY.—FREIGHT TRAIN AT NEWCHWANG



TYPE OF NARROW GAUGE AMERICAN LOCOMOTIVE IN USE ON S. M. RAILWAY BEFORE CONVERSION TO STANDARD GAUGE, BUILT BY THE AMERICAN LOCOMOTIVE CO.



FREIGHT CARS ON THE SOUTH MANCHURIA RAILWAY

BRIDGE OVER THE HUN HO

Principal Officials of the Railway Administration.—President, Z. Nakamura, Dairen; Vice-President, S. Kunisawa, Dairen; Directors, C. Seino, (Tokyo Branch), Tokyo; K. Kubota, N. Inuzuka, S. Tanaka, M. Kubota, S. Okamatsu, K. Nonomura, Dairen; Secretary, M. Numata, Dairen; Chief Railway Engineer, S. Kunisawa, Dairen; Chief Mining Engineer, Matsuda Fushun Collieries; Chief Accountant, S. Yasuda, Dairen; Construction Engineer, S. Hori, Dairen; Superintendent of Hospitals, Dr. K. Kasai, Dairen; Captain Superintendent, Capt. K. Matsuo, Dairen; Mechanical Engineer, M. Yoshino, Dairen; Harbor Engineer, T. Uchida, Dairen; Electrical Engineer, Y. Kasuya, Dairen; Superintendent of Hotels, K. Uyeda, Dairen; Store Superintendent, S. Yamamoto, Dairen.

COMPARATIVE SEMI-ANNUAL STATEMENT OF PROFIT & LOSS

	1ST WORKING HALF-YEAR (*April-Sept. 1907.*)	*CR*	2ND WORKING HALF-YEAR (*October 1907 March 1908.*)
1. Railway Receipts.....	Y 4,093,424.860		Y 5,675,462.253
2. Mine Receipts.....	647,065.693		837,153.557
3. Harbour Receipts.....	146,848.338		425,644.280
4. Hotel Receipts.....	16,451.800		42,940,910
5. Electric Work	5,674.000		59,247.400
6. Land.....	33,537.545		87,256.906
7. Miscellaneous	59,456.813		412,951.411
Total....	Y 5,002,459.049		Y 7,540,656.717

LIABILITIES

	1ST WORKING HALF-YEAR (*April-Sept. 1907.*)	*DR*	2ND WORKING HALF-YEAR (*October 1907 March 1908.*)
1. Railway Expenditures.	Y 2,757,446.446		Y 3,344,168.420
2. Mine Expenditures....	348,251.072		582,963.309
3. Harbour Expenditures.	63,624.343		496,526.229
4. Hotel Expenditures.	32,025.735		58,194.457
5. Electric Work Expenditures.....	39,307.403		61,930.175
6. Land Expenditures.	85,730.665		165,275.457
7. General Expendtures.	688,899.026		708,731.794
8. Debenture Redemption Fund.	58,578.000		8,578.5000
9. Interest on Debentures	.....		976,300.000
Total.....	4,073,862.690		6,452,667.841
Net profit.	928,596.359		1,087,988.876

COMPARATIVE SEMI-ANNUAL STATEMENT OF ASSETS & LIABILITIES

Assets

	1ST WORKING HALF-YEAR (*April-Sept. 1907.*)	2ND WORKING HALF-YEAR (*October 1907 March 1908.*)
1. Uncalled Capital.....	Y 18,000,000.000	Y 18,000,000.000
2. Properties taken over from the Government of Japan.....	100,000,000.000	100,000,000.000
3. Capital Expenditures.	4,513,325.415	14,048,757.648
4. Stores.....	2,021,887.525	13.796,971.252
5. Coal in stock.	144,765.398	138,744.713
6. Ground & Buildings of Tokyo Branch office.....	183,731.250	633,731.250
7. Difference between Face Value & Issue Price of debentures.....	2,928,900.000	2,928,900.000
8. Suspension %	646,200.755	1,434,322.690
9. Sundry Debtors.....	175,076.349	809,046.677
10. Workshop %.	125,046.955	124,876.111
11. Deposits.....	5,007,712.688	13,416,661.310
12. Cash on hand	122,062.348	144,099.096
13. Unpaid Debentures...	28,117,440.000	.....
14. Postal & Revenue Stamp %..	.....	3,420.000
Total.....	Y161,986,148.683	Y165,449,530.967

Liabilities

	1ST WORKING HALF-YEAR (*April-Sept. 1907.*)	2ND WORKIN HALF-YEAR (*October 1907 March 1908.*)
1. Capital Authorized...	Y200,000,000.000	Y200,000,000.000
Capital Subscribed....	120,000,000.000	120,000,000.000
2. Legal Reserve Fund...	22,705.890	69,135.710
3. Unclaimed Dividends.	6,675.120	5,372.130
4. Debentures..	39,052,000.000	39,052,000.000
5. Debenture Redemption Fund.	58,578.000	117,156.000
6. Guarantee Deposits ..	1,935.600	260.000
7. Suspension %	635,257.232	2,931,281.977
8. Sundry Creditors.....	896,659 803	873,379.544
9. Special Reserve Fund	.....	200,000.000
10. Land Rent %	.....	5,696.082
11. Savings Deposits.....	.....	181,353.410
12. Brought forward from last half-year.....	383,740.679	925,907.218
13. Balance Profit & Loss %	928,596.359	1,087,988.876
Total.....	Y161,986,148.683	Y165,449,530.947

SEMI-ANNUAL TRAFFIC RECEIPTS & EXPENDITURES

(SEPT. 1907-MCH. 1908)

RECEIPTS

	MAIN LINE ANTUNG	MUKDEN LINE.
1. Passenger Traffic.....	Y1,707,046	Y91,550
2. Goods Traffic.....	3,795,977	77,145
3. Miscellaneous.....	3,683	60
Total.....	Y5,506,796	Y168,755

EXPENDITURES

1. Maintenance.....	Y 815.502	Y 149,204
2. Operation.....	1,465,514	172,170
3. Traffic.....	673,576	68,202
Total.....	Y2,954,592	Y 389,576

COMPARATIVE STATISTICS OF OUTPUT OF FUSHUN COAL

MONTHS	QUANTITIES MINED	QUANTITIES SOLD	QUANTITIES CONSUMED BY CO.
Oct. '07.....	23,525	1,637	12,970
Nov. '07.....	21,883	7,286	8,833
Dec. '07.....	24,934	3,033	9,489
Jan. '08.....	23 374	6,919	12,110
Feb. '08.....	17,635	7,082	18,247
Mch. '08.....	27,082	13,674	24,093
Apr. '08.....	27,802	5,748	21,033
May '08.....	31,425	7,623	19,512
Jun. '08.....	33,504	10,079	30,402
Jul. '08.....	37,048	10,107	36,807
Aug. '08.....	34,476	8,847	20,884
Sept. '08.....	40,274	14,314	23,624
Total.....	342,962	96,349	238,004

PARTICULARS OF THE RAILWAY AREA

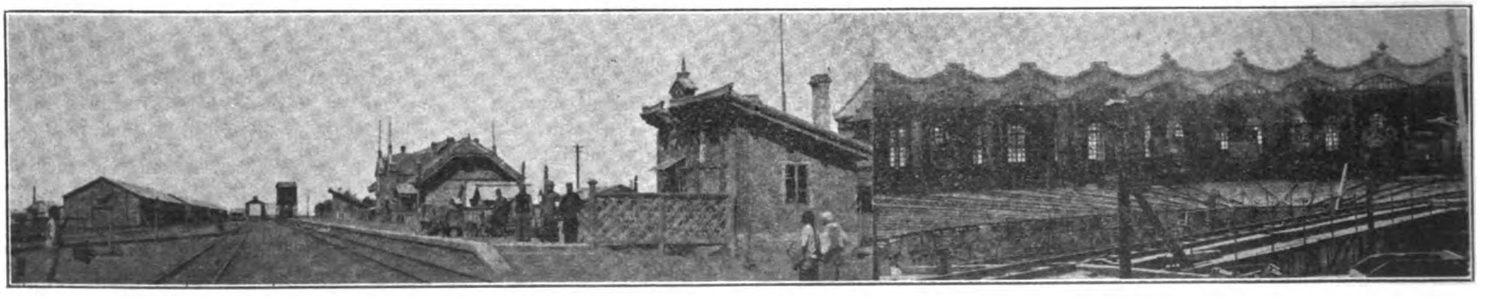
AREA OF THE RAILWAY ZONE

1. Within the Leased Territory.	6,637.671	"tsubo."*
2. Along the Main Line outside the Leased Territory.....	40,107,477	"
3. Along the Yingkou Branch Line.....	1,790,102	"
4. Along the Fushun Branch Line.....	528,797	"
5. Along the Antung-Mukden Light Railway Line.....	1,522,350	"
6. The balance scattered over a number of places along the Lines.....	3,585,315	"
Total.....	54,171,712	"

LAND AND BUILDING AREA RENTED

1. The total area of land rented out at the end of July, 1908.....	12,814,083	"tsubo."
2. The total building area rented out at the end of July, 1908.....	[12,171	"

*A "Tsubo" represents 36 square feet.



SOUTH MANCHURIA RAILWAY STATION AT NEWCHWANG

S. M. RY. ROUND HOUSE AT LIAOYANG

SOUTH MANCHURIA RAILWAY EXPRESS TRAINS,

composed exclusively of the Pullman Dining, Sleeping, and 1st Class Cars, are operated Semi-Weekly as follows:

FOR EUROPE

DAIREN

Sunday—Arr. about 6 a. m. by S.S. "Kobe-Maru" from Shanghai.
Monday and Friday.—Dep. 8 a. m.

CHANGCHUN

*Tuesday and †Saturday.—Arr. 5 a. m. South Manchuria Ry. Dep. 5.40 a. m. Chinese Eastern Ry. for Harbin).

FROM EUROPE

CHANGCHUN

§Tuesday & ‡Saturday.—Arr.7. 30 p. m. (C. E. R. from Harbin.) Dep. 8.40 p. m. (S. M. R.)

DAIREN

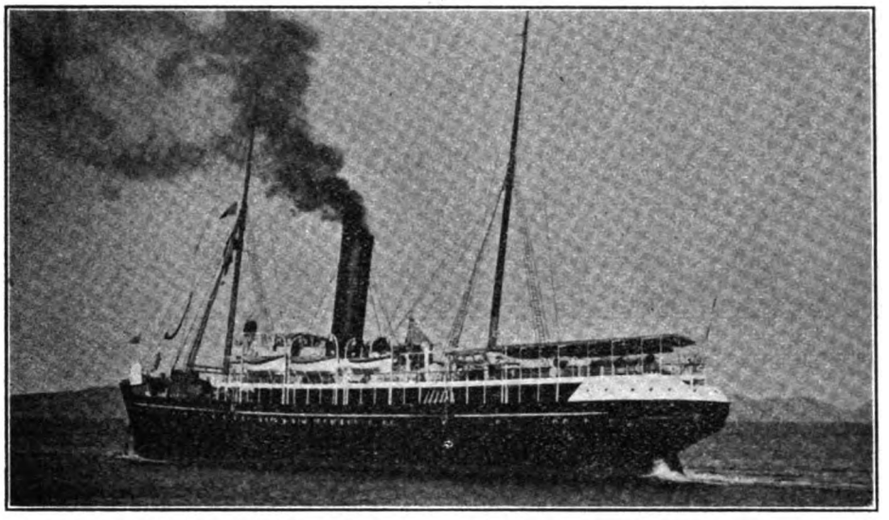
Wednesday & Sunday.—Arr. 6.15 p. m.
Monday.—Dep. Noon. (By S. S. "Kobe-Maru" for Shanghai).

FARES:

	1st Class	2nd Class	3rd Class
Single Trip.....	-Y-40	-Y-25	-Y-10
Return Trip.....	-Y-64	-Y-40	-Y-20

How to take the quickest route from Europe to the Far East.—Suppose you take the Wagons-Lits train leaving Moscow every Wednesday and due at Harbin at 7.35 a.m. on the following Saturday.

8 hours and 25 minutes later, you will start for Chang-chun (Kwanchengtzu) Junction of the Russian and the Japanese Lines, reaching there at 7.05 on the same evening, in time to be transferred to one of our Semi-Weekly Express Trains composed exclusively of the Pullman Sleeping, Dining, and 1st-class Cars, leaving Changchun on Tuesdays and Saturdays.



SOUTH MANCHURIA RAILWAY S. S. KOBE-MARU ON SHANGHAI DALNY RUN CONNECTING WITH S. M. EXPRESS

Dairen-Shanghai Steamer Service.—Passage tickets are on sale and berths may be reserved at the principal Stations of South Manchuria Railway and also at the agencies of the International Sleeping Car & Express Trains Company and also Messrs. Thos. Cook & Son in Europe and the Far East, for the fast passenger steamer *Kobe-Maru* (2,877 tons) carrying a duly qualified surgeon on board, on the Dairen-Shanghai steamer service.

Leaving Dairen—Mondays at noon, and
Arriving Shanghai—Wednesdays.
Leaving Shanghai—Fridays,
Due at Dairen—Sundays, in early morning generally.

*It connects with the International Train de Luxe, leaving Harbin for Moscow every Tuesday.
†It connects with the Russian State Express, leaving Harbin for St. Petersburg every Sunday.
§It connects with the Russian State Express from St. Petersburg for Vladivostock, leaving Harbin every Saturday.
‡It connects with the International Train de Luxe from Moscow for Vladivostock, leaving Harbin every Saturday.

The Saturday Express will depart from Changchun at 8.40 p.m., just like the other, and is due at 5.40 a.m. next morning (Sunday) at Mukden Junction for Tientsin and Peking via Shanhaikwan on the Imperial Railways of North China.

Leaving Mukden 25 minutes later, you will reach Dairen at 6.15 on the same evening, to put up, if you are so minded, at the Railway Hotel "Yamato" which is gaining in favor with the travelers for its irreproachable service and attention.

The passenger steamer *Kobe-Maru*, sailing from Dairen at noon every Monday, will take you to Shanghai on Wednesday.

TIME AND MONEY REQUIRED EN ROUTE (FROM EUROPE.)

MOSCOW-SHANGHAI.

Moscow-Changchun—11 days
1st class—Rbls. 282 2-5, including Sleeping Berth fee.
2nd class—Rbls. 184 3-10.
The Harbin-Kwangchengtzu Russian Section runs no Sleepers.

Changchun-Dairen—21 hours
1st class—-Y-39 9-20.
2nd class—-Y-13 ¾.
Including Express Extra and Sleeping Berth Fees.

Dairen-Shanghai—2 days
1st class—-Y-40, single trip (return trip -Y-64.)
2nd class—-Y-25, single trip (return trip -Y-40.)
Nearly—15 days.

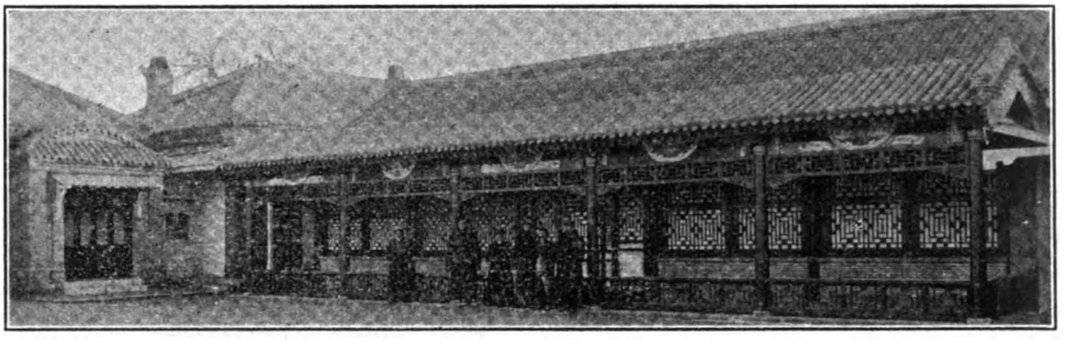
IMPERIAL RAILWAYS OF NORTH CHINA.

	1st Class	2nd Class
Mukden-Peking.....	Mex $31.30	Mex. $19.60
Mukden-Yingkou.....	Mex. $9.80	Mex $6.15

The Chinese Expresses connect with our own at Mukden and take about 26 hours between Mukden and Peking.

From the Far East to Europe.—Peking-Moscow.

Dep.—Peking, 5.30 p. m., daily, by Imperial Railways of North China.
Arr.—Mukden, 6.45 p. m., on the second day.
Dep.—Mukden, 8.20 p. m., on Mondays, by South Manchurian Express:
Arr.—Changchun, 5 a.m., Tuesdays.
Dep.—Changchun, 5.40 a.m., Tuesdays, by Chinese Eastern Railway.
Arr.—Harbin, 4.10 p.m., Tuesdays.



SOUTH MANCHURIA RAILWAY'S TOWN OFFICES IN MUKDEN

TYPE OF BARRACKS FOR RAILWAY GUARDS AT MUKDEN

Dep.—Harbin, 6.25 p.m., Tuesdays, by Russian State Express:
Arr.—Moscow, 7.10 p.m., Thursdays week, Russian State Express.

Harbin-St. Petersburg.—The other Weekly Rusian State Expresses leave Harbin for St. Petersburg, on Sundays, at 6.25 p. m., the 1st class fare being Rbls. 298.95, including Express Extra and Berth fees, except Harbin-Kwangchengtzu Section, which runs no sleeping cars.

This trip takes in all 235 hours a little less than 10 days.

St. Petersburg-London.—The Expresses leaving the Russian Capital at 6 p. m. will land you in London, at 10 p.m. of the third day, taking about 53 hours and about Rbls. 98 for the fare.

THE ANTUNG-MUKDEN RAILWAY

Shortly following the occupation of Antung by the Japanese forces on May 1, 1905, owing to the almost impassable character of the mountain roads in this region and the necessity of facilitating a more rapid movement of supplies, the construction of a light railway was begun by their engineer corps and its extension continued with the advance of the army as far as Shichiaotzu, a point about 30 miles to the southeast of Mukden. The country to the north and west of Shichiaotzu, drained by the Taitzu River, a tributary of the Hun Ho, being quite level and ordinary methods of transportation comparatively easy, this point was made the terminus of the railway until August, 1906, when the Okuragumi, a large Japanese concern, received from the military authorities a contract to extend it to Mukden. The construction of this section, covering a distance of 33 miles, was finished in less than one and one-half months.

While the railway follows practically the same route as when first laid, considerable grading has since been done, unsafe wooden bridges have in several places been removed and the gullies filled in with crushed stone, and at a few points the distance has been shortened and crossing over the mountains made less dangerous by cutting through ledges. The work of improving the road is still going on, gangs of Chinese workmen, each under a Japanese foreman, are scattered along the entire distance, and ties as well as other railway materials seem to form the bulk of the freight at present handled. No tunneling has yet been done and probably will not be until the survey of the permanent railway has been completed.

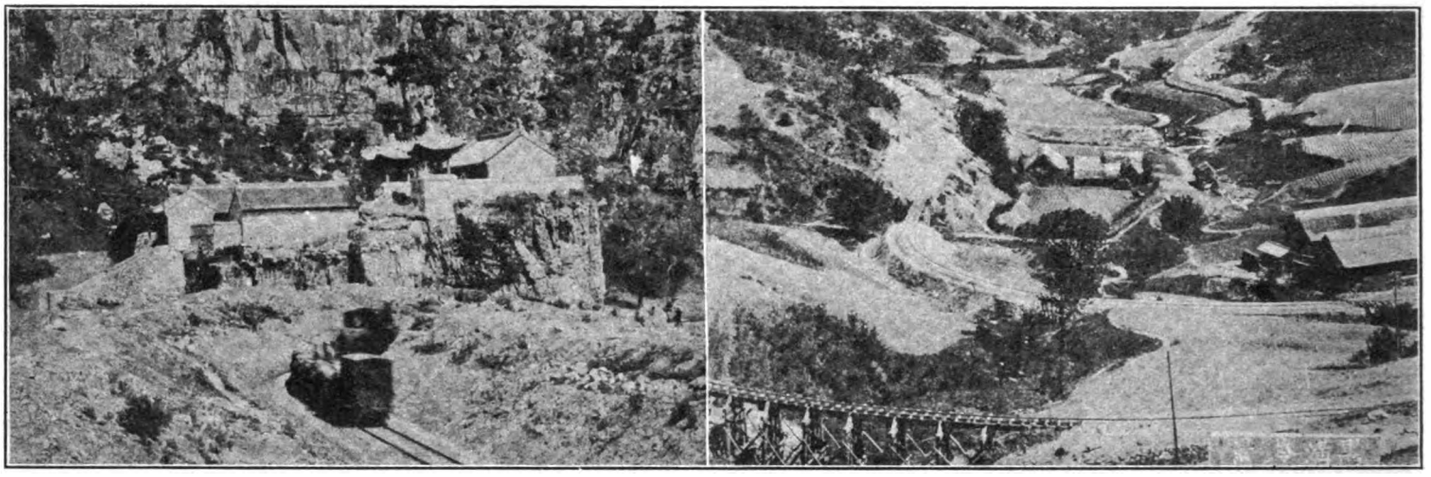
Wherever it could be done without making the route excessively circuitous, the road has been constructed side by side with river-beds, sometimes following a comparatively straight line and again winding among the mountains. There are four points at which the line crosses the tops of the mountains and where the trains either circles around the spurs or moves from side to side after the manner of a heavy-laden team going up or down a hill. At one place the line recrosses itself in parallel tiers one above the other as many as five times. Frequently the steep grades (1 in 30), the sudden turns and unstable wooden bridges follow one another in such a manner as to make the descent especially dangerous. Accidents are said to have been of very frequent occurrence formerly, but improved grading with crushed stone and more careful methods of operation have greatly lessened their number.

The gauge is 2 feet 6 inches. The rails as well as the rolling stock, including locomotives and trucks, were supplied by the Baldwin Locomotive Works. The system possesses altogether 150 locomotives, 100 of these being of 16 and the remainder of 11 tons. The freight cars are all open and similar to those used for hauling sand in America. There are two sizes, one with a capacity of 2, and the other 5 tons. The entire carrying capacity of the railway is only some 1,200 tons. Besides these open cars there are a number with tops and designed especially for the passenger traffic. At both Antung and Mukden there are several wooden buildings, which were once used for the storage of military supplies but at present seem in large part to be lying idle. The intermediate points also have storing facilities, used principally for the supplies of the railway employes, as well as substantial buildings of Chinese architecture for stations and the dwelling-houses of the railway officials.

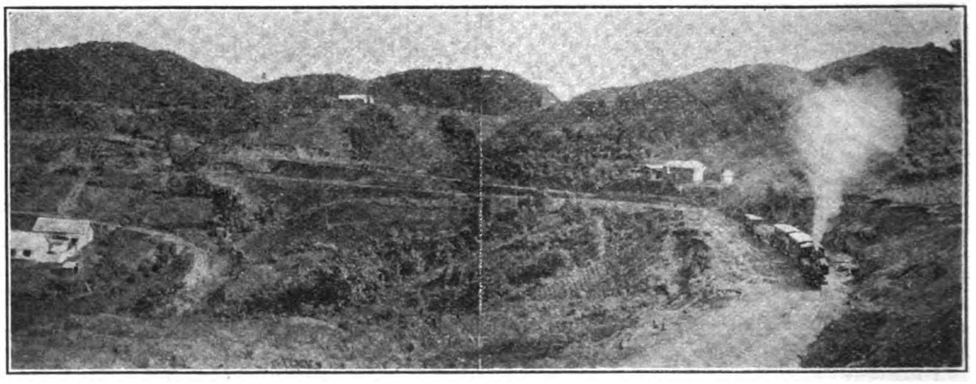
The line was formerly under the control of the military authorities until its transference to the South Manchuria Railway Company, in December of 1908.

The line was opened to general traffic, both freight and passenger, in August, 1908. Two schedule-time runs are daily made from each end in addition to more or less regular ones between some of the intermediate points The journey from Antung to Mukden requires two days. The through trains both leave in the morning, one at 6 o'clock and the other at 9, and reach Tsaohohu (Sokako) 12 hours later. Operation after dark would of course be subject to a great deal of risk, so that passengers are obliged to pass the night at this point, resuming their journey on the following morning at the same hours as before. Tsaohohu is not at all a suitable place to recover from the day's fatigue. It has a number of Chinese inns and one in Japanese style, neither particularly inviting to the foreigner. The traveler must bring his luncheon with him to Antung, as neither food nor drink can be secured until reaching Tsaohohu, and unless he is sure of satisfying his hunger with *cuisine japonaise*, which is all that is to be had here, he should equip himself at Antung with two days' subsistence.

At present, however, the importance of this railway as a channel of immigration is slight and even with improved accommodations it can give but little encouragement in the region traversed by it to Japanese colonization or the small commercial enterprise so characteristic in parts of Manchuria more easily accessible. Indeed, there is nothing perhaps except the spirit of adventure which would induce the

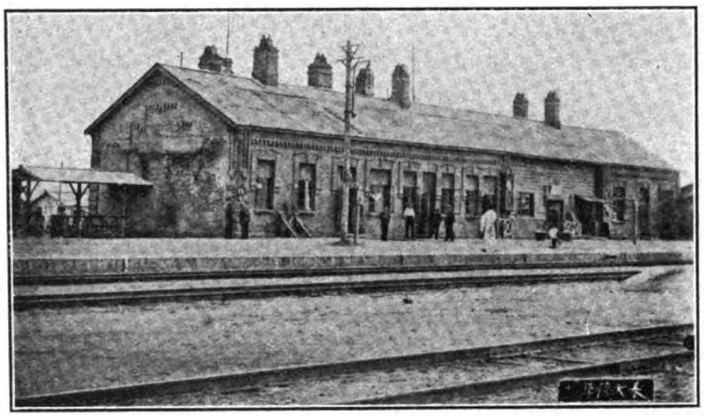


VIEW OF ANTUNG-MUKDEN RAILWAY



BLACK MINE PASS ON THE ANTUNG-MUKDEN RAILWAY

merchant, prospector or immigrant to avail himself of this route for reaching interior Manchuria. The train leaving at 9 o'clock consists entirely of freight-cars. Two or three of these may be loaded with freight, but the most of them are intended for passengers, who clamber into them pell-mell and struggle among themselves for squatting room. The discomfort of traveling in this manner during a heavy rain or a cold north wind can readily be imagined. The earlier train has attached one or two of the passenger-cars already mentioned. These, however, are not any more comfortable to sit in than the freight-cars and preferable to them only in affording shelter from inclement weather. In fact, the experience of traveling by this route probably helps one to form a good picture of what the railway was in its early days and the distance, 187 miles (100 as the crow flies), is undoubtedly the greatest covered by a line of its kind. The average speed is about 9 miles an hour, although as high as 12 miles is reached on the level.



MUKDEN STATION OF THE SOUTH MANCHURIA RAILWAY

As already stated, the greater part of the freight handled consists of railway supplies. The amount of general goods carried is almost too small to be considered, and the supposition that the absence of a custom house at Antung has been taken advantage of to ship large quantities of merchandise into the region made accessible by this railway is not borne out by the actual conditions. The rate, 10 sen (5 cents) a ton per mile, for most commodities is so high as to leave only a small margin of profit and in some cases is entirely prohibitive.

The standard gauge railway to connect Antung with Mukden, it is expected, will follow the same general course as the present one. Since its completion, however, will probably require the larger part of three years, the new company is to continue the operation of the present line, and will undoubtedly carry on improvements and at the same time considerably extend the *modus operandi*. With its present narrow gauge, however, this railway, even when worked to its utmost limit, can give no more than a very small stimulus to the mineral, agricultural, industrial or commercial development of the region which it affects.

RAILWAYS IN NEW SOUTH WALES

The development of railways in New South Wales is referred to by *Hardware and Machinery* and that journal calls attention to the fact that for the third section of the North Coast Railway (Gloucester to Taree), N.S.W., the tender of Rhys-Jones, Carter & Co., Ltd., at £455,365 was accepted. Mr. Surveyor Jamieson is at present engaged surveying the proposed deviation of the railway from Taree northwards, crossing the Dawson River near the bridge at Cundleton. If this deviation is decided upon, it will admit of one station in the lower Manning district being alongside deep water, and willprovide a central railway port at which passengers may entrain, and at which produce may be shipped from river passenger and cargo steamers. The deviation, it is claimed, also provides better grade than the route originally surveyed, and is less expensive.

The Gloucester-Taree Railway, above referred to, is the most important work of the kind undertaken in the State for many years. Apart from the fact that it will form a link in a great railway system, it is estimated that it will provide constant work for about 1000 men for nearly three years. The section will have a length of about 44 miles, and under their contract the successful tenderers have three years in which to complete the job. The section embraces some of the heaviest work on the whole line, and a great many streams have to be spanned. Tenders for the necessary steel bridges were accepted some time ago, and the contract for the building of the section provides for the delivery of the bridges at Darling Harbour, their conveyance to the different sites, and the erection of the structures. There are two or three tunnels on the line, but none of them are of great length. The earthworks, however, are very heavy. Five tenders were received, and it is a remarkable fact that never in the history of railway construction in the State has the competition been so keen. The tendering was done on the schedule basis and the lowest tender received was very close to the departmental estimate, while a sum of only £9000 separated the four lowest tenders, a sum that is insignificant in comparison with the amount of the contract.

The Parliament of New South Wales has referred to the Public Works Committee the proposal for constructing a line of railway from Moree to Mungindi. The line will be 66 miles long, and the estimated cost is £285,889. The committee has also been asked to report upon the expediency of constructing a line from Coramba to Dorrigo. In introducing the matter, the Minister said the country was very precipitous, and could be developed only by means of a railway. Although the route was only 37 miles long, the estimated cost of a line of standard gauge, grade, and curves was £667,158. It would be possible, he said, to use Shay engines on a line of the standard gauge, but with sharper curves and steeper grades. The estimated cost of such a line would be £230,000. A further estimate had been made of a line with a narrow gauge, and the same curves and grades that would be used on the Shay line, and the cost of such would be £190,560. The Government had, however, decided to preserve the standard gauge, and to adopt the Shay system. It was also resolved to refer to the Works Committee proposals for the duplication of the Great Western line from Emu Plains to Blaxland; for the making of a deviation of the South Coast railway line between Waterfall and Otford; for the construction of a line of railway from Hermidale to Nymagee; of a line from Perak Hill to Parkes; of a line from Bega to Eden; of a tramway from Bomaderry to Jervis Bay; of an electric tramway from Military-road, North Sydney, to Cremorne Point, and of an electric tramway from Waverley to Bronte.

TIN MINING COMPANIES

Reviewing the history of the tin mining companies of the F. M. S. the *Malay Mail* directs attention to their respective standing in the share list and says:

"Of 27 tin mining companies, it appears that only 11 have ever paid a dividend. With one exception the remaining 16 companies were formed in 1906 or 1907, so it is evident that the investor in mining shares must be prepared to wait for some little time for dividends. The one exception is Rahman Tin, a 1905 company, but we fancy this concern must be paying, as the selling price of the £1 shares is $15. Of the dividend paying mines five have their shares quoted above par and six below. The lucky five are the Gopeng Tin Mining Co., New Gopeng Mining Co., Kinta Tin Mines, Tronoh Mines, and Bruseh Hydraulic, all of which have paid a dividend or interim dividend in 1908 except Tronoh, which paid a 25% dividend in 1907. Of the remaining six one paid a dividend of 57½% in 1903 and the $10 shares are now quoted at $1. Another paid 35% interim dividend in 1907 and holders are willing to sell their $10 shares for $4. A sterling company formed in 1904 paid 45% for year ending 30.6.07 and the £1 shares are now worth $3.25 in the market. A dollar company formed in 1903 paid 10% for the year ending 31.3.08 and it appears that the buying public value the $10 shares at $7, and so the story goes on.

"A perusal of the general list is more encouraging as regards the regularity of the dividend and the value of shares in those cases where dividends are earned at all.

"But when we look at the output for December we find that two of the companies which have not paid a dividend yet come second and third on the list to Tronoh which remains the greatest producer; whilst the fourth place belongs to the company whose £1 shares range between $3 and $4: yet this company had an output far in excess of the 1908 dividend payers. We do not know, however, how much of this is tribute work. The capital of this company is larger than that of the dividend payers but even when comparing capital and output it is difficult for the investor to arrive at any decision as to the best investment. An Investor's Guide giving the history of each company up to date and some general remarks on the present and future prospects of the mine would be a welcome addition to local literature."

F. M. S. TIN OUTPUT, FEB. 1909

	Piculs.
Belat	382
Bruseh	270
Gopeng	495
Kanaboi	155
Kinta	330
Kledang	405
Kuantan	52
Lahat	909
New Gopeng	80
Pahang Consolidated	1,060
Pusing Lama	484
Rambutan	290
Redhills	475
Royal Johore	38
Salak South	239
Sempam	61
Serendah	315
Sipiau	106
Tekka	390
Tronoh	1,343

GOLD OUTPUT

Oriental Consolidated for January, value $122,912 gold.

Raub Australian Gold Mning Co. for February, .1225 oz. smelted and 123 oz. cyanide.

regular service will take a few days to restore. It is dangerous to move about the city just now as the walls that have been damaged are coming down now and then with a crash. * *"

Some remarks on this typhoon.—The typhoon increased in speed in the China Sea, the rate of velocity being about 8½ miles per hour when it crossed south of the Batan Islands, and about 14½ miles per hour when it struck Hongkong. It seems that it increased likewise in depth after it left the Balintang Channel; but once in China it soon began to fill up gradually as is generally the case in the typhoons which land in the Asiatic Continent.

According to the Director of Hongkong Observatory, when the typhoon passed close to that colony, "the radius of the area over which strong gales blew does not appear to have exceeded 35 miles in average." The area over which winds with full typhoon force were recorded seems to have been of less than 20 miles radius.

SHANTUNG COAL RAILWAY

Many are the difficulties in the path of the Chinese who undertake railway construction. It is now nearly a year and a half since operations began on the coal road in the Yiehsien district, S. W. Shantung, near the Kiangsu border. First, the permission of the Board of Communications, Peking, had to be obtained, a transaction which, report has it, cost the railway company the sum of a hundred thousand taels. Then extensive land purchase had to be made for the 30 miles of railway from the port on the Grand Canal, Tai-en-chwang to the town, Tsao-chwang, near which the mines are located. These two towns give the railway its official name the Tsai-tsao Railway.

In the vicinity of Yihsien, the land becomes more valuable and some is held by wealthy families who have taken it into their perverse heads to block the enterprise by holding out for exhorbitant prices. The matter, after being in suspense for eight months or more, is now to be arbitrated by a deputy of the Shantung Governor.

Notwithstanding, progress is being made. The line is modeled as to gauge and construction after the German line from Tsingtau to Tsinan. Some three miles have been built from Tai-en-chwang and a number of cars have been put together and are being used to send forward construction material. The expectation is that Yihsien will be reached next autumn. An engine house is being built at Tien-chwang and those in charge would put an engine together could they find all the parts. One half the building material, ordered through the firm of Messrs. Arnhold Karberg & Co. who have the entire contract for supplies, is now delivered.

All the work thus far has been done by Chinese. The Chief Engineer, Mr. Kuoa from Canton, impresses one with being a bright man. The first locomotive engineer is from Tsingtau and the mechanic who is putting the cars together is from Tsinan. Kilns erected on railway premises are burning brick for the construction of stations. Work is going forward on all sides steadily though slowly.

The boilers for stationary engines in the mines have also arrived. The mines are of immense importance as one of the principal sources of the coal supply of the Tientsin-Pukow line. It is now an acute question as to who shall build the connecting railway between the mines and the trunk line 15 miles to the west.

*ELECTRICITY FOR SANDAKAN

We have been favored with a copy of an agreement entered into between the Government and the British Trading Company, of 3 Godliman Street, St. Paul's Churchyard, London, under which the Company have acquired certain exclusive rights for a period of ten years, for the supply of electric light and power to Government and private consumers within the town limits. It would be wearisome to quote long clauses from a long agreement, but the following facts will be of interest.

1. The Company is to be in a position to supply electric light within 24 months from 8th December, 1908.

2. The first system of distributing mains will be laid in Jalan Kapok and Lorong Lima.

3. The current for private lighting will be supplied on the meter system at a charge of 30 cents per unit, the consumer bearing the cost of installation beyond the meter. The Company will provide the first supply of incandescent bulbs, and the public may instal their own wires if desired.

4. The Government have entered into a contract to take a supply of current for public lighting.

5. The supply of current will be continuous for 24 hours in each day.

We are informed on good authority, though we make the statement with due reserve, that the cost of electric light per unit in England varies in different localities from 7½d to one shilling. If this is the case, the terms quoted above are distinctly favorable. The fact also that the current will be available all day will enable consumers to install electric fans—no small boon in a hot office.

Although the rights granted to the Company are exclusive, the monopoly is of a very modified nature. The Company will have to compete first with kerosine, and secondly with the many varieties of artificial lights such as 'Lux,' 'Kitson,s,' acetylene, etc., which are daily being improved and cheapened.

*CENSUS OF PEKING

The census was made by "families," and these in turn were divided into "principal families" and "additional families," or into "principal tenants" and "subtenants." The total number of families in the inner or Tartar city is given as 79,009, and in the outer or Chinese city as 46,999, making a total of 128,008 families.

Recent Japanese official works give the number of people per household in the urban districts of Japan as about 4.99. An unofficial census made in 1907 of the city of Swatow, in Kuang-tung Province, works out 5.4 per household, and the unofficial census of 1881 of Wen-chou, in Chekiang Province, 5.14. Chinese officials and others who have been consulted on the question think that in the case of Peking the number of people per household is probably higher than in other localities in China, some saying that it should be reckoned as high as 8. I think that 5.5 may be taken provisionally as a fair approximate average. This would make the present population of Peking, exclusive of the suburbs (but they are unimportant), 693,044 persons.

As supplementing the above census of population I forward an official statement of the schools, governmental and private, mostly on western lines, together with the number of students of either sex, now open in the 23 police districts of Peking. From this it appears that there are 183 schools for boys and 17 for girls, with a staff of 1,200 men teachers and 100 women. The attendance is 16,282 boys and 771 girls.

Assuming that 25 per cent of the population of Peking is below 15 years of age (in Japan this portion of the population is reckoned at 33 per cent, but in view of the rate of infantile mortality in China I have adopted a lower per cent), we have 173,261 children, one-half of which (86,630) probably is of age to attend school. The result of two years' work is highly creditable to the energy of the officials and shows the interest taken in the education of children by the people.

§FERRO-SILICON POISONING

The recent cases of death from inhalation of fumes from ferro-silicon on the s.s. *Ashton*, by which five Russian immigrants lost their lives at sea on the night of December 12-13 last, have been investigated by the Royal Institute of Public Health, and the report thereon has been sent us.

"Ferro-silicon is a coarse metallic powder, which, under ordinary circumstances, possesses no particular odor, but if confined, powdered or moistened, a distinct phosphorus odor can be detected. It is manufactured by heating a mixture of iron ore, quartz, coke, and lime in an electric furnace, and is used by steel makers as a convenient method for the addition of silicon to certain grades of steel. A little consideration will give some indication of the nature of the poisonous gases likely to be formed when this product is moistened. Many minerals contain phosphoric acid and arsenic. Consequently, when such a mixture, as above described, is strongly heated, phosphides arsenides, carbides, and silicides may be formed, and these may, under certain conditions, evolve phosphoretted hydrogen, arseniuretted hydrogen, acetylene, and silicon hydride.

In order to determine which of the above gases is mainly evolved when ferro-silicon is moistened, the following experiments were made:—

(a) Two hundred grammes of the powdered and moistened substance were placed in a horizontal glass tube, 19 ins. long 1 in. in diameter. This tube was connected with another tube about 11 ins. long and ½ in. in diameter, and filled with small pieces of potassium hydrate in order to absorb any sulphuretted hydrogen. Air was then gently drawn through the tube for about three hours, and allowed to pass through a 10 per cent. solution of silver nitrate contained in a De Koninck absorption apparatus. A dark precipitate was immediately produced in the silver solution, and at the end of the period was considerable in amount. This precipitate might be due to all or any one of the abovementioned hydrides.

(b) Experiment (a) was repeated, with the exception that the potassium hydrate tube was removed and ammoniacal cuprous chloride solution substituted for the silver nitrate. As no precipitate was formed in the copper solution it is evident that acetylene is not formed under these conditions.

(c) Experiment (a) was repeated, but in this case the gases were passed through nitrite acid. The acid solution was evaporated almost to dryness, hydrochloric acid added, and the mixture evaporated to complete dryness. The addition of hydrochloric acid and subsequent evaporation to dryness was repeated and the residue dissolved in distilled water, when no trace of insoluble silica was found. Silicon hydride is, therefore, not evolved from moistened ferro-silicon at ordinary temperatures. Having excluded acetylene and silicon hydride from the gaseous mixture, there remains the possibility of phosphoretted and arseniuretted hydrogen.

(d) Some of the silver solution obtained in experiment (a) was then filtered, and the filtrate, which would contain arsenic (if present in the gases) as arsenic acid, was introduced into a Marsh-Berzelius apparatus, with the result that a slight mirror was obtained after prolonged heating. Some of the precipitate was then introduced into the apparatus, when the characteristic phosphorus flame was immediately produced, being most marked, and this, in spite of the facts that the heating of the glass tube was continued, which would tend to decompose phosphoretted hydrogen, and that the flame was burning at the end of a tube not furnished with a platinum jet. It is therefore evident that, although arseniuretted hydrogen is produced in small quantities, the chief gas evolved is undoubtedly phosphoretted hydrogen, a gas which is stated to be so poisonous that 0.02 per cent. of it in air is fatal to small animals within half-an-hour.

The result, therefore, of the inquiry into the cause of death of the five Russian immigrants on board the s.s. *Ashton* is that they died from the effects of gaseous emanations from the cargo (ferro-silicon), mainly attributable to the presence of phosphoretted hydrogen.

This investigation is of great scientific interest, as possibly it is the first occasion in this country in which deaths have been known to be attributable to this cause. * * * *

The pathological effects of such poisonous gases as phophoretted hydrogen and the like are at present so little understood that it has been determined to undertake further experiments in connexion with this subject."

* British North Borneo Herald.

*Consular Reports.
§*Mining Journal.*

to place £50,000 in the reserve which now stands at £1,575,000 and to carry forward £134,000 besides paying a bonus of 10% to the staff.

HELM BROS., LTD.—A final dividend of 10% making 17.5% for the year absorbed yen 24,995.55 and a balance of yen 6,395.55 was carried forward.

IMPERIAL HOTEL, LTD. (TIENTSIN).—This company paid a dividend of 8% and carried forward Tls. 1,290.

PEKING ELECTRIC COMPANY, LTD.—Out of Tls. 13,781.08 available for distribution a dividend of 2% was declared and after writing off installation and paying auditors' fees a balance of Tls. 1,613.07 was carried forward.

ROYAL JOHORE TIN MINING COMPANY, LTD.—A dividend of 3% was declared and $579.23 carried forward.

SIPIAU TIN COMPANY, LTD.—A dividend of 3% was declared and $777.68 carried forward for the half year ended December 31st, 1908.

KARANGAN HYDRAULIC TIN MINING COMPANY, LTD.—The profit for the half year ended December 31st amounted to $2,400 which sum was carried forward.

MERCANTILE BANK OF INDIA.—A dividend of 6% per annum has been recommended together with an addition to the reserve fund of £24,000, an addition of £2,000 to the officers' pension fund and balance forward £25,300.

SERENDAH TIN MINING COMPANY, LTD.—A final dividend of 2.5% making 10% for the year was paid and a balance of $5,418.54 carried forward.

FRASER & NEAVE, LTD.—The directors recommended the following disposition of the sum of $84,105.33 available for distribution:

(*a*) That a dividend of 15 per cent. and a bonus of 2½ per cent. or, together, 17½ per cent. on the capital of the Company, or $8.75 per share, be paid, absorbing $39,375.

(*b*) That a sum of $17,500 be added to General Reserve bringing same up to $150,000.

(*c*) That the balance of $27,230.33 be carried forward to a new Profit and Loss Account.

BALGOWNIE RUBBER ESTATES, LTD.—This company declared an interim dividend of $1.25 payable March 15.

THE PAKNAM RAILWAY COMPANY, LTD.—The net profit for the year amounted to Ticals 56,650.35 out of which a dividend of 8% was declared and Ticals 24,350.35 carried forward.

BANGKOK MANUFACTURING CO., LTD.—A dividend of 5% was declared for the half year ended December 31st, Ticals 10,000 added to the reserve, and Ticals 5,376 forward.

SIAM STEAM PACKET COMPANY, LTD.—The following disposition was made of the profits for the year ended December 31st, 1908:

	Ticals
Transfer to Dividend Account 8%...	10,500.00
Transfer to Dividend Account New Issue.....	1,546.66
Transfer Goodwill Account.....	2,400.00
Remuneration to Directors.....	2,500.00
Carried forward to 1909.....	608.99
	17,555.65

MENAM MOTOR BOAT CO., LTD.—After allowing Ticals 20,000 for depreciation the balance to the credit of profit and loss of Ticals 3,653.71 was carried forward.

BANGKOK DOCK COMPANY, LTD.—The following distribution of profit was recommended by the directors:

	Ticals
Transfer to Dividend Account 5%...	40,000.00
Transfer to Dividend Account New Issue.....	500.00
Remuneration to Directors.....	6,800.00
Carry forward to 1909.....	8,872.58
	56,172.58

CONTRACTING NEWS

*CITY OF MANILA.—Bids will be received to July 1st for the furnishing of approximately 160 gate valves, 20 air valves, and 325 fire hydrants by the Secretary of the Municipal Board, Manila.

*CITY OF MANILA.—Bids will be received to June 1st for the furnishing of 7,000 tons of cast iron pipe hub and spigot pattern; about 56 tons of 20-inch flexible joint and flanged cast iron pipe; two tons flanged cast iron pipe and about 200 tons of cast iron specials, by the Secretary of the Municipal Board, Manila, or address Chief of Bureau Insular Affairs, Washington.

IMPERIAL TIENTSIN-PUKOW RAILWAY.—Tenders invited, to be opened June 21st, 1909, by the Managing Director at Nanking, China, for the furnishing free of all charge at the wharf at Pukow, not later than December 31st, 1909, Steel Plate Girders as follows:

26 Spans of Deck Girders, 12 feet clear span; 12 Spans of Deck Girders, 20 feet clear span; 60 Spans of Deck Girders, 30 feet clear span; 12 Spans of Deck Girders, 50 feet clear span; 2 Spans of Through Girders, 50 feet clear span; 3 Spans of Deck Girders, 75 feet clear span; 3 Spans of Through Girders, 75 feet clear span.

Quotations in sterling and bids must be presented on or before June 20, 1909.

IMPERIAL TIENTSIN-PUKOW RAILWAY.—Steel plate girders to be delivered on wharf at Pukow during the month of May, 1910. Quotations in sterling and received by Managing Director at Nanking not later than June 20th, 1909:

12 Spans of Deck Girders, 12 feet clear span; 8 Spans of Deck Girders, 20 feet clear span; 150 Spans of Deck Girders, 30 feet clear span; 30 Spans of Deck Girders, 50 feet clear span; 8 Spans of Deck Girders, 75 feet clear span.

IMPERIAL-TIENTSIN-PUKOW RAILWAY.—Rolling Stock for Southern Section. To be delivered at wharf, Pukow, in January, 1910. Tenders addressed Managing Director, Nanking, to be opened June 25, 1909.

For 100 High Sided Wagons (30 tons); 100 Low Sided Wagons (30 tons); 50 Covered Goods Wagons (20 tons).

Also eight tender locomotives 2-6-0 type, cylinders 19"×24". Coupled Wheel 5'-0" diameter. Working pressure 180 lbs. With six wheel-tenders.

The locomotives and tenders to be delivered on the railway wharf at Pukow; four locomotives to be delivered during the month of April 1910, and the remaining four during the month of August 1910.

Tenders should be addressed to the Managing Director, Tientsin-Pukow Railway, Southern Section, Nanking. They will be opened at 10 a.m. on Tuesday, the 29th June, 1909.

CHIEF QUARTERMASTER, U. S. ARMY.—100,000 pounds of rope. Bids opened April 30th, 1909.

*CHIEF QUARTERMASTER, U. S. ARMY.—One sea-going single-screw tug-boat. Bids opened June 1st, 1909. Address, Philippines Division, Office Chief Quartermaster, Manila, P. I.

PHILIPPINE GOVERNMENT.—40,000 barrels cement; bids opened May 8th, 1909. Address E. G. Shields, Purchasing Agent, Manila, P. I.

PHILIPPINE GOVERNMENT.—40,000 *metric* tons of coal; bids opened May 17, 1909. Address E. G. Shields, Purchasing Agent, Manila, P. I.

BIDS OPENED.—March 20, 1909, Managing Director, Imperial Chinese Tientsin-Pukow Railway, Nanking. Lumber to be delivered at Pukow, not later than August 31, 1909. One ship load of Douglas Fir, not exceeding 3,000,000 feet rough and worked with 250,000 laths.

March 19, 1909.—Managing Director, Imperial Chinese Tientsin-Pukow Railway, Nanking. Sleepers, crossing timbers and bridge ties as follows:

100,000 Wooden Sleepers, each 8 feet by 9 inches by 5 inches; 800 Crossing Timbers, each 9 feet by 9 inches by 5 inches; 300 Crossing Timber, each 10 feet by 9 inches by 5 inches; 300 Crossing Timbers, each 11 feet by 9 inches by 5 inches; 400 Crossing Timbers, each 12 feet by 9 inches by 5 inches; 300 Crossing Timbers, each 13 feet by 9 inches by 5 inches; 400 Crossing Timbers, each 14 feet by 9 inches by 5 inches; 200 Crossing Timbers, each 17 feet by 9 inches by 5 inches; 3,000 Bridge Ties, each 10 feet by 9 inches by 5 inches.

*Advertised in the FAR EASTERN REVIEW.

TO CONTRACTORS

OFFICE OF THE MUNICIPAL BOARD.—Manila, P. I., January 20, 1909.—SEALED PROPOSALS or bids will be received by the Secretary of the Municipal Board, Manila, P. I., until 12 o'clock m., June 1, 1909, for furnishing cast-iron pipe and specials for the City of Manila, Philippine Islands.

The total amount to be furnished will be approximately seven thousand (7,000) tons of cast-iron pipe, hub and spigot pattern; about fifty-six (56) tons of 20 inch flexible joint and flange cast-iron pipe; about two (2) tons of flanged cast-iron pipe, and about two hundred (200) tons of cast-iron specials.

Specifications, general plans, and blank forms of proposals may be obtained at the office of the Secretary of the Municipal Board, Manila, P. I., or from the Chief of the Bureau of Insular Affairs, Washington, D. C.

Each proposal must be accompanied by a certified check for ten thousand dollars ($10,000), United States currency, drawn on a local bank; or a bond in like amount, signed by a fidelity insurance company, authorized to give such bond in the Philippine Islands, as a guaranty that the bidder, if awarded the contract, will after due notification, promptly enter into contract and furnish an acceptable bond in the sum of twenty (20) per cent of the sum total of the contract price for the faithful performance of the work.

The right is reserved to reject any or all bids.

H. L. FISCHER,
Secretary of the Municipal Board.

J. F. CASE,
Chief Engineer, Department of Sewer and Waterworks Construction.

ADVERTISEMENT

OFFICE OF THE MUNICIPAL BOARD.—Manila, P. I., February 15, 1909.

Sealed bids or proposals will be received by the secretary of the Municipal Board, Manila, P. I., until 12 o'clock m., July 1, 1909, for furnishing gate valves, air valves and fire hydrants for the city of Manila, Philippine Islands.

The total amount to be furnished will be approximately one hundred and sitxty (160) gate valves, twenty (20) air valves, and three hundred and twenty-five (325) fire hydrants.

Specifications, general plans, and blank forms of proposal may be obtained at the office of the secretary of the Municipal Board, Manila, P. I., or from the Chief of the Bureau of Insular Affairs, Washington, D. C.

Each proposal must be accompanied by a certified check for three thousand dollars ($3,000), United States currency, drawn on a local bank; or a bond in like amount, signed by a fidelity insurance company, authorized to give such bond in the Philippine Islands, as a guaranty that the bidder, if awarded the contract, will, after due notification, promptly enter into contract and furnish an acceptable bond in the sum of twenty (20) per cent of the sum total of the contract price for the faithful performance of the work.

The right is reserved to reject any or all bids.

H. L. FISCHER,
Secretary of the Municipal Board.

J. P. CASE,
Chief Engineer, Department of Sewer and Waterworks Construction.

PROPOSALS FOR FURNISHING TOWBOAT.—Headquarters Philippines Division, Office of Chief Quartermaster, Manila, P. I., April 15th, 1909. Sealed proposals, in triplicate, subject to the usual conditions, for furnishing and delivering to the Quartermaster's Department, U. S. Army, Manila, P. I., one seagoing, single screw, towboat, will be received here until 10:00 a. m., June 1st, 1909, and then opened. Certified check in ten per cent (10%) of amount of bid must accompany proposals. Blank forms and full information furnished upon application to this office. Envelopes containing proposals should be endorsed "Proposals for furnishing towboat, to be opened at 10:00 A. M., June 1st, 1909," and addressed to the Chief Quartermaster, Philippines Division, Manila, P. I.

PHILIPPINE LEAF TOBACCO TO AUSTRALIA

The Walter E. Olsen & Co., Inc., made a shipment of 83,688 pounds of leaf tobacco to the order of the States Tobacco Company of Melbourne and Sydney together with 500,000 José Rizal and Fighting Bob cigars this month and there is promise of marked extension of trade in this direction.

MINING MACHINERY FOR THE SAN MAURICIO

The complete equipment for the installation of a 20 stamp mill in the San Mauricio mine, Camarines, arrived at Manila and will be shipped south this month. The shipment comprised 353 packages, in all about 130 tons, and is the largest shipment of mining machinery ever brought to the Philippines. It includes a complete mill of 20 stamps, concentrators, pacifiers, an electric light plant complete and power machinery. President Heise states that the installation will be complete and the plant operating by the end of 1909.

PHILIPPINE GOLD OUTPUT

The Paracale Gold Dredging Company report the saving of 644 ounces during the month of March.

The Benguet Consolidated Mining Co. reports a saving of 235 ounces during the month of March.

STRAITS SETTLEMENTS TRADE

The following is a comparative statement of the Straits Settlements imports and exports for 1907 and 1908:

	1908	1907.
Singapore.....	$45,137,294	$45,483,886
Penang.....	$21,980,145	19,700,804
Malacca.....	1,050,469	918,256
Total.....	$68,167,908	$66,102,946
Total in Sterling....	£7,952,924	£7,712,010

Increase in Dollars—$2,064,962.
Increase in Sterling—£240,914.

The imports of merchandise into the three Settlements during the last quarter of the respective years were as follows:

	1908	1907.
Singapore.....	$52,868,783	$57,360,470
Penang.....	24,220,413	20,584,505
Malacca.....	1,085,252	1,228,365
Total.....	$78,174,448	$78,173,340
Total in Sterling....	£9,120,351	£9,120,223

Increase in Dollars—1,108.
Increase in Sterling—£128.

FAR EASTERN ENGINEERING, CONSTRUCTION, COMMERCIAL AND FINANCIAL NEWS.

ELECTRIC RAILWAYS, LIGHT, POWER, TELEGRAPHS, TELEPHONES, AIRSHIPS, ETC.

KIRIN ELECTRIC LIGHT PLANT.—This company has been serving light to customers for some time, and it is expected that the whole system will be in operation in a few months.

WIRELESS ON AMERICAN RAILWAYS.—A telegraphic report from New York announces that wireless telegraphy has been successfully utilized on a train running between Buffalo and Chicago.

U. S. TRANSPORT WIRELESS.—The transport *Sheridan* reports having received messages covering a distance of 3,000 miles and on her last voyage to Nagasaki kept in touch all the distance. All the transports are being equipped.

ELECTRIC CRANES FOR AUKLAND.—The contract for supplying cranes to the harbor board has been let to Messrs. John Chambers & Sons, Ltd., Aukland, agents for Messrs. Babcock & Wilcox of London and Glasgow. The price was £16,421. f. o. b. at an English port.

CHINESE TELEGRAPH WIRE FACTORY.—It has been announced that Peking is negotiating with an American wire manufacturer for the establishment of a wire factory at some point in China, the capital to be supplied jointly by the government and the American capitalist.

PORT ARTHUR ELECTRIC RAILWAY.—The proposed tramway to connect Old and New Town, Port Arthur, is again being discussed and it is said that the promoters have secured the necessary capital to buy the equipment and lay the track. It is proposed that the power be secured from the electric light plant there.

HAWTHORN ELECTRIC LIGHTING.—The report on the cost of lighting the town estimates the cost at £94,650, says *Hardware and Machine*, and an alternate proposal to secure current from the Melbourne plant is being considered. The output of the Melbourne plant grew from 3,500,000 units in 1902 to 7,500,000 in 1908.

ELECTRIC LIGHT FOR SANDAKAN.—The British Trading Company of London has secured a concession to install a system of electric lighting in the city, and the contract with the British North Borneo Government requires that the plant begin operating within 24 months from December 8th, 1908. The charge will be 30 cents per unit to the consumer.

WIRELESS FOR CHINA.—The difficulty of establishing communication by telegraph across the deserts that intervene between Peking and the extreme North-west of the empire is to be surmounted by the installation of an extensive wireless system under the control of the Chinese government. The Board of Posts and Communications are now making investigations as to the best systems to adopt.

JAPANESE-AMERICAN ELECTRIC APPARATUS MANUFACTURING COMPANY.—More information published in the Japanese press discloses the fact that the Shibaura Works managed by the Mitsui Company and the Tokyo Electric Company will be amalgamated and with the General Electric will form a company with four million capital controlled by the American capitalists. The General Electric owns a large tract of land at Kawasaki, and it is said that a large factory will be established there.

RAILWAYS AND RAILWAY SUPPLIES

THE KASHING RAILWAY.—The work on this railway is progressing favorably and trains are running into Kashing.

NANKING-WUHU LINE.—Viceroy Tuan Fang has completed arrangements to construct a line connecting these two points in Kiangsu.

RAILWAY WORKSHOPS AT SHAHOKOU.—The site of the South Manchuria shops has been chosen and materials are now on the ground.

YUNNAN RAILWAY CONSTRUCTION. The construction on this line has reached Mongtze, a distance in all of 500 miles from Haiphong.

IPOH RAILWAY STATION.—A new railway station is to be constructed and a branch line running from Ipoh to Gopeng is being considered.

ANTUNG-MUKDEN RAILWAY.—The final survey of this line with a view to shortening the line and increase it to standard gauge is now under way.

CANTON-HANKOW CONSTRUCTION.—This work has reached North River and the line is being operated beyond Yuntam about fifty miles from Canton.

PINGSHIANG RAILWAY EXTENSION.—The extension of the Canton-Hankow to the mines will be built by the Canton-Hankow and not as planned by the mines.

CHINESE EASTERN RAILWAY.—It is reported that the Russians are carrying on negotiations at Peking for the sale of their rights in this railway, to the Chinese government.

TSINANFU-LOKOW LINE.—This temporary line on the Hoangho between these two points will be completed this month and will be operated until the completion of the Tientsin-Pukow.

NEW CHINESE RAILWAY COLLEGE.—The Viceroy of Chihli has recommended the establishment of a railway college at Tientsin. It will have a three year course with classes in German, French, and Russian.

GEMAS-PAHANG EXTENSION.—The construction of the line from Gemas junction to Kuala Semantan in Pahang is being pushed rapidly. Eighteen miles of steel have been laid and the ballasting is well under way.

NEW SHENSHI RAILWAYS.—The officials of Shensi are urging the building of a railway from Hsian to Tungkwan, another from Hsian to Langchow, besides the extension from Tungkwan to open up the coal and oil districts.

F. M. S. RAILWAY APPRENTICES.—This railway system has inaugurated a plan whereby apprentices are taken on without pay until trained and there is a vacancy in the regular paid force. The result has been ten applications for every opening.

YENTAI BRANCH LINE.—This line, which runs from the mines to the station at Yentai, is being widened to standard gauge and the work is expected completed in August. It is also the intention to widen all the sidings connected with the line as quickly as possible.

NORTHERN AND WESTERN CHINESE RAILWAYS.—The construction of a line from Kalgan to Kulun and another from Kalgan to Suiyuen projected some time ago, is being considered at Peking at the present time and it is very probable that means will be realized to finance the proposition.

ANGLO-SIAMESE RAILWAY.—According to the terms of the treaty providing for the withdrawal of Siam from the suzerainty of Kelantan, Tringanu and Kedah, the Federated Malay States have agreed to provide the sum of £4,000,000 to go towards financing the construction of a railway from Bangkok to the new Malayan boundary.

YALU RAILWAY BRIDGE.—With the going out of the ice in the spring the construction of the big railway bridge will begin. This construction will be the most important in connection with Korean and Japanese railways. When completed it will inaugurate through traffic from Fusan to Mukden. It will be 3,182 feet long and cost $4,000,000.

SZECHUEN-TIBET RAILWAY.—British capitalists are interested in a proposal to construct this line starting from Tibet and providing for connections with the Indian system. So far Peking has not considered the proposition with much favor. It is the purpose of the Chinese to begin construction as soon as the Hankow-Szechuen line reaches the latter point.

CHINESE RAILWAY RETURNS.—From the different reports submitted it is gathered that during the year 1908 the Peking-Fengtien Railway made a profit of Tls. 3,300,000, the Peking-Hankow Tls. 3,000,000 and the Ping-hsiang-Liling Tls. 100,000 and that the Taokow-Tsinghwa, Chengting-Taiyuen and Shanghai-Nanking Railway, lost Tls. 300,000, Tls. 600,000 and Tls. 900,000 respectively.

CHEFOO-WEIH-HSIEN RAILWAY.—The latest advices have the route of this line along the coast line to Tungchow, says the *Peking & Tientsin Times*.

"The first section will be from Chefoo to Fushan; the second, from Fushan to Hsintien; the third, from Hsintien to Wushilipu; the fourth and remaining section, from Wushilipu to Tungchow. From Tungchow, the line will extend in a South Easterly direction as far as Huanghsien. The line will run from Huanghsien to the terminus Weihhsien, via Laichowfu and Chungyi."

JAPANESE PRIVATE RAILWAYS.—There is a total of 450 miles of railways conducted by private enterprise in Japan, the official list of which follows:

Tobu Railway—between Tokyo and Ashikaga—56 mils. 34;

Chugoku Railway—between Okayama and Tsuyama—48 mils. 60;

Nankai Railway—between Osaka and Wakayama—41 mils. 43;

Narita Railway—between Sawara and Abiko—33 mils. 02;

Iyo Railway—between Takahama and Yokogawara (Shikoku)—27 mils.;

Omi Railway—between Kisho and Hikone—26 mils.;

Yokohama Railway—between Higashi Kanagawa and Hachioji—25 mils. 35;

Chuyetsu Railway—between Jyohata and Takaoka—22 mils. 05;

Jyoha Railway—between Takasaki and Shimonita—21 mils.;

Kawagoye Railway—between Kawagoye and Kokubunji—18 mils. 05;

Toyokawa Railway—between Nagashino and Yoshida—17 mils. 04;

Bisai Railway—between Shin-ichinomiya and Yatomi—15 mils. 06;

Hakata Bay Railway—between Ishitozaki and Takami (Kyushu)—15 mils. 04;

Jyobu Railway—between Kumagai and Namikure—14 mils. 02;

THE FAR EASTERN REVIEW

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HARBIN: THE AFTERMATH OF RUSSIA'S ADVENTURE

By GEO. BRONSON REA.

Shanghai, April 26th, 1909.—One of the greatest achievements in city construction witnessed by the world has been carried on by Russia in the heart of Manchuria. Americans are familiar with mushroom towns which have grown into cities of prominence, but behind all such growths there have been invariably some tangible commercial reasons for rapid development. The same has been witnessed in other parts of the world, where large towns and cities have sprung up owing to a mining boom, or the opening up of new fertile country. But Russia has shown the world how to design and create a city, overnight as it were, to further her political designs and expand her influence in the Orient.

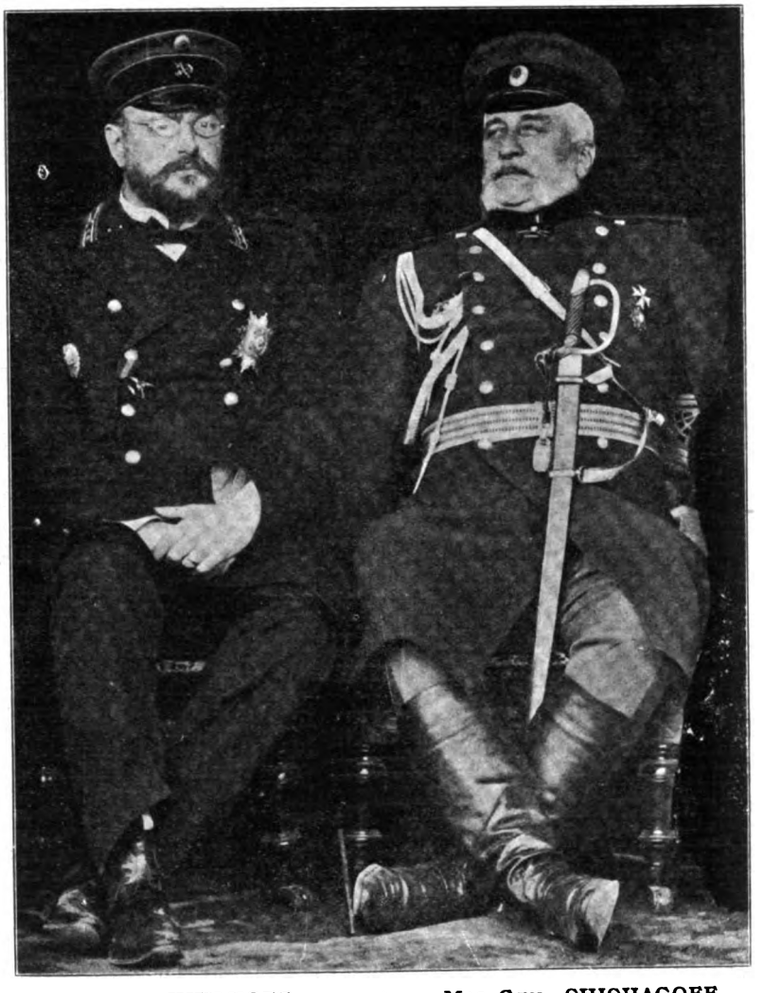
In the building of such cities as Vladivostok, Port Arthur, and Dalny, Russia clearly exposed her policy on the Pacific, and her determination to obtain a preponderating influence in China, while in Harbin, an altogether different type of activity was displayed, in which her industrial ambitions were disclosed.

In September 1896, the agreement between the Russo-Chinese Bank and the Chinese Government was concluded for the construction and management of the Chinese Eastern Railway. This was the link which was to bind the Pacific littoral with the great Trans-Siberian Railway, through Chinese territory in northern Manchuria, thus avoiding the greater task of

(Continued on page 423.)

MAJ.-GEN. HORVATH,
GENERAL MANAGER AND CHIEF OF THE RAILWAY STAFF OF THE C. E. RY., THE DOMINANT SPIRIT OF HARBIN

VICTOR F. LUBA,
RUSSIAN CONSUL-GENERAL AT HARBIN, WHO WAS RECALLED



PRINCE KHILKOFF,
CHIEF ENGINEER AND ASSISTANT CHIEF OF THE C. E. RY. STAFF, HARBIN

MAJ.-GEN. CHICHAGOFF,
CHIEF OF THE RAILWAY GUARDS, HARBIN

THE FAR EASTERN REVIEW

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RECENT PHILIPPINE APPOINTMENTS AND THE CIVIL SERVICE

The recent promotion of Mr. Frank A. Branagan, Treasurer of the Philippine Islands, to the position of Commissioner, of Deputy Treasurer, Mr. John L. Barrett, to succeed Mr. Branagan as Treasurer, and the promotion of Mr. William H. Clarke, Deputy Auditor and Acting Auditor of the Philippine Islands, to the position of Auditor, is the most striking evidence that President Taft proposes to ignore any claim to appointment in the Philippine service but that of merit and length of service. The notorious "spoils system" that has heretofore served to destroy every attempt at establishing a permanent and healthy civil service will not be allowed to interfere with the perfecting of the system in the islands. The payment of political debts by appointments that would cheat a faithful and meritorious official out of his just promotion will not be a feature of the policy of this administration. And the wisdom of such a course is very evident to those familiar with the difficulty experienced by the administration in the Philippines, heretofore, when there were no certainty that broken down politicians would not be pensioned off there. The general feeling of appreciation of these appointments is most gratifying to the department chiefs, and evidence of it is taking the form of the desire of many members of the service to remain permanently, who were seriously considering the advisability of returning to America and starting a career anew.

The promotion of these men is recognized as the reward of the most faithful service under the most trying conditions. They have to show for their work the perfect organization of the Bureau of the Treasury and the Bureau of Audits. When it is remembered that there was no precedent in modern accounting upon the arrival of the Americans in the islands and the work in its initial stage was confined to organization and to perfecting a system of audits to meet conditions with which few, if any Americans were familiar, it is remarkable the success that has been attained by the Bureau of Audits in a short decade. To Mr. Clarke is due the present satisfactory system evolved and his promotion was a just recognition of his valuable service to the administration and the islands.

The same might be said of the Treasurer's office. Mr. Branagan came with the Taft commission and has been the head of that bureau ever since. He is the father of it, having directed its organization and the perfecting of the machine which is taking care of Uncle Sam's wealth so thoroughly. In this work he has had the assistance of Mr. Barrett, a young man of marked ability who has earned his reward.

THE AMUR RAILWAY

With the ratification of the Portsmouth Treaty, the political and strategic advantages of the Chinese Eastern Railway were rendered useless by Article VII, which debarred Russia from using the line for military transport. Checked in her designs on Manchuria, and prohibited from carrying out her ambitions on the Pacific, by destroying her strategic line of communication, Russia determined to safeguard her interests and build an all Russian road through her own territory. Japan is within striking distance of the present Manchurian highway to the Pacific, and in the event of future hostilities the link binding the Ussuri province with the mother Country would be broken, with the certainty of the loss of the Pacific littoral and perhaps the Pri-Amur region and Trans-Baikalia.

It was not without great opposition that the Government Bill for the construction of the new railway succeeded in passing the Duma. Starting at Stetinsk, it will skirt the Amur river along its northern bank to Harvorovsk, making connections there with the Ussuri Railway for Vladivostok. The Government emphasized the urgent necessity of developing the natural resources of the region traversed by the road and bring her distant provinces into communication with the heart of the Empire. The idea that the road was to be built for strategic purposes was deprecated, and it was pointed out that opposition to its construction was equivalent to advocating cutting adrift the Pri-Amur and the Ussuri, the best districts for colonization in all Siberia. Without the Amur railway, this immense and valuable frontier could never be thoroughly colonized or developed.

Despite, however, all assurances to the contrary, the world will view the construction of this road as the first step in Russia's set desire to regain her lost position and prestige in the Orient. At present, the region traversed by the road is so cold that the mean annual temperature is several degrees below freezing point. Dense forests line the banks of the Amur and cover the country for miles back. Cereals grow very poorly, and the productivity of the soil is insufficient to meet any great increase in population. The population is sparse, and a huge colonization scheme will have to be forcibly carried out to compel settlement.

Under the direction of the Ministry of Agriculture at St. Petersburg, an emigration campaign has already been organized and is being prosecuted with all the funds available. Even this has not led to any great increase in the Pri-Amur, the settlers prefering the Altai regions or the Maritime Provinces. The importance of the Amur colonization is, however, highly appreciated by the Government, and the machinery is being perfected to bring about the desired result. Up to 1906 $1,300,000 gold had been appropriated for the work, and that year the sum of $2,800,000 was set aside. In 1907, $6,750,000 gold was provided, and last year, 1908, $9,500,000. As a return for this expenditure in 1906, some 30,000 families or 180,000 persons were sent out, in 1907, 68,500 families or 400,000 persons, while in 1908 it is estimated that 100,000 families with 600,000 persons were located in Eastern Siberia. But most of these settlers have followed system and determination in their selection of homes and the movement was chiefly in the direction of the Altai regions while there was a marked increase in the settlement of the Maritime Province. The Amur district was passed by for more promising and fertile lands.

The passage of the Act, authorizing the construction of the Amur Railway, had these conditions in view, as it was stipulated that it must be built by Russian labor. The government hopes to complete the line by 1912, at an estimated cost of $110,000,000 gold. To accomplish this an army of labor must be transported. The severity of the climate and the short working day reduces the four years to less than half that time as compared with similar work in temperate zones. At least 200,000 men would be necessary to complete the line in this time, and once there a large percentage will remain permanently, and form a nucleus for future increase in population. The engineering difficulties of the line are many, and present problems not encountered in other Russian railways. Probably the two most important problems will be the passage of the Kinghan mountains and the bridging of the Amur at Harboroosk.

—G. B. R.

JAMES F. SMITH, GOVERNOR-GENERAL OF THE PHILIPPINES.

The departure of Governor-General Smith on six months' leave and the prospect, if his own wishes are respected, that he may enter other fields of activity in the homeland of America, was the occasion in Manila for the manifestation of the depth of affection for this democratic Californian held by all classes and nationalities in the islands. Perhaps no man, with the exception possibly of Governor-General Wright, made more personal and enduring friendships during his term as Executive than James F. Smith. When he undertook the duties of office, he gave as his motto the expression "Pull Together," and it might be said that his whole administration policy encouraged, and successfully, that sentiment among all classes and interests in the islands. He simply paraphrased General Wright's advice when at a press banquet he said to the pressmen, "We are all in the same boat together. Now do not rock the craft, just for the pleasure of hear-

ing the ladies shriek." General Smith was a great admirer of Wright and Ide. He was ever giving credit for any success attained to these two predecessors, who, he said, "Prepared the way and made it possible for me to accomplish nything with any degree of success." He was entirely unselfish and expected no credit for his work. He always said that all his success was largely due to those who served him faithfully as soldiers and in the different departments of which he has been the head. Indeed, all his utterances on the eve of his departure were those of a modest, unassuming citizen, who believed that he had been specially favored by Providence in his career.

Perhaps the most desirable outcome of his administration has been the improved relations with the neighboring sections of the Far East. General Smith has added to the historic hospitality of Malacañan. He made it typical of true democracy as the wellbred American gentleman understands it. It made an impression upon those visitors from Far Eastern sections that was, to say the least, a revelation. And the sincerity that characterized his relationship to one and all, made many lasting friendships among men of every nationality.

Every commercial and social organization in Manila paid tribute to the General. Many were the sincere expressions of love and affection for the man and the official. Of these manifestations he said, "It is now on the eve of my departure that I realize how deep the influence of association is rooted. The eleven years spent here have made friendships of a lasting character. To separate from them is much more painful than I could have anticipated. They form themselves almost without our knowledge, and we have our realization of them in full measure when we come to the point of separation and then only do we fully appreciate its significance. I have appreciated the touching evidences of personal affection for me and I am more than gratified to know that I have the love and regard of the men who fought with me in the field, of those who aided me in my administration, and of those whom I have met socially and in a business way. The sincerity of it all touches me deeply."

James Francis Smith was born in San Francisco January 28th, 1859. He graduated from Santa Clara College in 1878 with the degree of A.M. He then attended the Hastings Law School and was admitted to the bar of San Francisco in 1885. He practised law in San Francisco and was thus engaged when the war broke out in 1898 and he was chosen Colonel of the First California Volunteer Infantry. He arrived in the Philippines with his regiment on June 30th, 1898, and participated in the capture of Manila, August 13th of that year. He was appointed Deputy Provost Marshal of the city and served as president of a military commission, and on October 22nd was put in charge of a brigade in the first division, Eighth Army Corps. He was a member of the commission appointed to treat with Aguinaldo. At the outbreak of hostilities he participated in the battle of Santa Ana, San Pedro Macati, Pateros, Taguig, and it was said of his activity that he would have captured Pasig had not his victorious troops been recalled to strengthen the American ine. As an old sergeant of his regiment put it, when referring to this incident, "If they hadn't caught Jim Smith when they did, we'd be sure going yet." He was commended for gallantry in action on this occasion, and on March 1st, 1899, was put in command on the Isle of Negros until the arrival of General Hughes. Later he was appointed Military Governor of Negros and commissioned Brigadier General. His next post was that of Insular Collector of Customs, and later he received the appointment which, as he says himself, was his highest ambition, that of member of the Supreme Court of the Philippines. Here he expected to remain and follow his natural bent. But Taft was looking for timber of the right caliber and he chose the General as a member of the Commission. It was with reluctance that he accepted this honor, yet he felt it was his duty to serve where his chief needed him, but he always pined for the bench. He was later appointed Vice-Governor, and, upon the retirement of Governor Ide, became Governor-General. This last honor he did not want. It was practically forced upon him. He undertook it with many misgivings and urged that some one else from among the members of the commission be chosen. He was finally induced by his friends to accept. For the last year he has been endeavoring to be relieved, but without success, and finally he sent in his resignation the first of the year to President Taft. It has not yet been accepted He was granted six months' leave and invited to Washington to talk it over. If Taft can talk him over he will come back. He has served faithfully and well and would be a severe loss to the administration, should he sever his connection at this time.

Governor-General Smith was ever ready to co-operate with American, foreign, and native enterprise in the islands along the lines of legitimate development, and for this reason alone, by his retirement at this time, the Philippines would lose a man whose influence is sorely needed.

W. CAMERON FORBES, ACTING GOVERNOR-GENERAL OF THE PHILIPPINES

The assumption of the duties of Executive upon the departure of Governor-General James Smith from the Philippines by Vice-Governor Forbes as Acting Governor-General, marks the advancement to that position, for the first time, of a business man. Heretofore the Executives were chosen from among the members of the bar, and it was natural that during the constructive period of legislative enactment this should be so. As evidence that it was the purpose of the Taft administration to have the commercial interests represented, Mr. Forbes was induced to take a hand in Philippine affairs, and, as secretary of Commerce and Police, he inaugurated many reforms and innovations designed to serve the best interests of the commercial community. In recognition of this work he was named Vice-Governor which placed him in line of promotion for the Governor-General's place. So that for the present he serves as Acting Governor-General and, if General Smith retires as he proposes to do, Mr. Forbes will succeed him.

W. Cameron Forbes was born in Milton, Mass., in 1870, and graduated at Harvard with the degree of A.B. After his graduation he associated himself with the firm of Messrs. Jackson & Curtis, of Boston, and later as auditor of the well-known firm of Messrs. Stone & Webster of that city, and one of the most prominent firms of the United States, having control as General Managers of many systems of electric railways, plants, and industrial enterprises. He became a member of the well-known firm of Messrs. J. M. Forbes & Co. of Boston in 1899, and his duties as official and director of many companies gave him a wide experience in financing and directing large undertakings.

It was in 1904 that Mr. Forbes was prevailed upon to give the Commission and the Philippines the benefit of his natural gifts and his wide experience in commercial matters. That body was short of a representative of the commercial interests. The result was the ineffectual coastwise shipping was overhauled and reorganized under Mr. Forbes' direction. Schedules were made and the shipping firms encouraged to maintain them by substantial government patronage. He carried into effect the plan to provide a system of railways throughout the country and to construct permanent roads. He solved the problem of maintenance and, through the Bureau of Public Works, made for permanency in all kinds of construction in the islands. The removal of strictures on the shipping in the port, the arrangement of the new port works and the construction of warehouses on the new-made ground for the reception of imports, and in a thousand ways Mr. Forbes urged better facilities for handling the shipping in the harbor. Then he took up the subject of irrigation. He recognized that the commerce of the country depended upon the development of the agricultural industry. He assiduously applied his best effort to interest his co-legislators in this enterprise with the result that a well-defined scheme is now under way.

He has many other plans for the improvement of trade conditions, and, during his term, it is reasonable to expect the greatest degree of encouragement in every line of commerce and industry.

As a citizen, Mr. Forbes has been identified in every movement tending to help the Philippines get a hearing abroad. He not only approves but digs down in his pocket when occasion requires. This application of a well developed public spirit has made Mr. Forbes a most popular official. And he is modest about what he has accomplished. Like General Smith, he is ever leaving the praise to others while he proceeds to accomplishment.

Mr. Forbes is the first bachelor to assume the duties of Governor-General. He is turning his 40th year and, in point of wealth, independently rich. A man of simple tastes, fond of outdoor exercise, he is a typical American gentleman of the old school. He is an official who will make many friends for the islands.

THE FAKUMEN RAILWAY QUESTION

(From our Own Correspondent)

Shanghai, April 30th, 1909.

The Fakumen Railway incident still engages the attention of China and Japan and continues to furnish the press with occasion for pointed references to Japan's unfriendly attitude in opposing China's development and blocking the execution of a British contract. Notwithstanding the dignified position of the British Government in refusing to listen to popular clamour and recognize in Japan's policy an infringement of the Open Door principle, the interests leagued with China persist in agitating the question.

This dispute has held public attention for a long time, and the arguments of both sides have been vented freely in the press and diplomatic circles. From a careful review of the facts it is, however, becoming more and more evident that China has overreached herself and that there is more behind this matter than an insignificant railway extension of 50 miles. In fact, the incident is beginning to savor of a carefully planned and skillfully carried out intrigue to embarrass Japan and foment a spirit of antagonism in Great Britain against a renewal of the alliance.

The Treaty of Portsmouth bound the signatory Powers "not to obstruct any general measures, common to all countries, which China may take for the development of commerce and industry in Manchuria," but Japan subsequently secured from China, in a secret Protocol to the Peking Agreement of 1905, the promise "not to construct, prior to the recovery (by China) of the (South Manchuria) Railway, any line in the neighborhood of, and parallel to, that Railway, or any branch line which might be detrimental to the interests of the South Manchuria Railway."

China's rights, which were thus amply protected by the Portsmouth Treaty, were again placed in jeopardy by her own diplomats in the later agreement with Japan. With all her past bitter experiences to guide her, and confiding her interests in the hands of her most experienced officials, China blindly bound herself to another surrender of rights, and paved the way for future troubles.

One of her most skilled and astute diplomats, Tang Shao Yi, a Columbia graduate, attended the conferences with the Japanese Plenipotentiaries, leading up to the final signing of the Agreement with its secret protocol, and he was therefore in full possession of all the facts and conversant with all the points at issue. There appears to be no doubt that the full significance of this secret clause was appreciated by China, for it is part of the records of the discussions that its bearing on future railway construction in Manchuria was carefully considered. It is also recorded in the published reports of the American State Department that, when questioned by the American Minister at Peking about this self denying clause, Tang Shao Yi categorically denied its existence. Tang was subsequently appointed Governor of Mukden on the organization of Manchuria into a vice-royalty, and shortly afterwards initiated the secret negotiations

which terminated in the signing of the agreement with Lord French for the construction of the Fakumen extension of the Imperial Railways of North China, and with J. O. P. Bland acting for the British and Chinese Corporation for the loan. This work was therefore carefully planned and entered into on the initiative of one of the high Chinese officials thoroughly familiar with the stipulations of the secret clause, and the storm that would be provoked by an attempt to prove its practical application to the situation in Manchuria.

The singular fact inferred from this action on the part of H. E. Tang Shao Yi, which was a complete reversal of policy on the part of China, compels the belief that the step was taken with the express design of forcing Japan's hand and testing the strength of the Peking Agreement, for as the clause was secret, Japan would necessarily have to make its provisions public, in the event of any infraction of the terms on the part of China.

For some years past China has endeavored to recover some of the rights signed away by former inexperienced officials, and especially to regain control of her railways, and as far as possible construct future roads with her own capital. The Imperial Railways of North China, as its title indicates, is an enterprise controlled by the Imperial Chinese Government, with a British engineer in chief, imposed by the loan agreement of 1899. It is one of the most profitable railway enterprises in the world. The line is 600 miles long, and represents a total capital investment of $49,394,426 (Mexican), of which amount $27,600,000 (£2,500,000) was secured as a loan from British capitalists in 1899 at 5 per cent interest. The balance of the capital, $21,994,428, is held by the Imperial Chinese Government and native shareholders. The ratio of expenses to earnings in 1906 was 28 per cent, in 1907, 37 per cent, in 1908, 28 per cent. The receipts last year were $11,067,677, and expenses $3,075,567, leaving a credit balance of $7,992,110, which, added to the credit balance carried forward from the previous year of $6,658,763, made a total of $14,650,875 for expenditure. After paying the fourth installment on the loan and interest, Chinese shareholders and other general expenses, and applying $3,839,288 towards the construction of the Peking-Kalgan Railway, there was still a credit balance of $6,296,215. In fact the surplus profits of this line are not only sufficient to carry on the construction of the Kalgan railway, but have also been pledged to guarantee the interest on other railway loans.

Here is a road which not only provides for all its own improvements, branches, and all charges, but is actually building another 200 mile road, and also the rolling stock for various native roads in its car shops, and guaranteeing the interest on loans to construct others, all under Chinese supervision and free from foreign interference. The actual expenditure on capital account for the existing 600 miles of road is a little over $80,000 Mexican per mile, and at this high rate an extension of 50 miles costing $4,000,000 could readily be undertaken out of the present credit balance of the road, especially as the work would take two years to complete, and the expenditure spread out accordingly. Yet, despite the existing bitter opposition to unnecessary foreign loans, and the undoubted financial and engineering ability of the Imperial Railways of North China to carry on the work under its own supervision, it was considered necessary to build this little insignificant 50-mile extension to reverse the policy of the country and resort to a foreign loan, placed in Great Britain and its construction contracted for by a British company.

There is only one interpretation to this enigma. China, in her defenseless condition, could not successfully disregard Japan's opposition to the secret clause, and so adroitly laid her plans to secure powerful foreign assistance to carry her point, and ascertain Japan's interpretation of its meaning, and her future intentions. As British capital was already interested in the loan of the I. R. N. C. it was hoped that this fact in addition to the influence of the alliance would result in Japan consenting to the execution of the contract.

The remarkable cleverness and diplomacy of Tang Shao Yi in enlisting this aid, by contracting with Lord French for the construction of the road, and with the British and Chinese Corporation for the loan, before Japan learned of his intentions, is only surpassed by the blind acquiescence in the scheme by the general public, and the acceptance of China's side of the dispute, because British interests were involved. British and American diplomats have also been adroitly led to report favorably on China's rights in the dispute, and the press generally has followed the same course.

The refusal of the British Government to interpret Japan's attitude as threatening the doctrine of equal opportunities, and interfering with China's development has perplexed the leading British organs interested in Chinese affairs. To the disinterested observer, however, this position seems entirely consistent and comprehensible. In addition to a suspicion that the Fakumen scheme was "a put up job" to discredit Japan, China has permitted the world to gain an insight into her future intentions to prolong the railway northwards to Tsitsihar and thence on to Aigun, with a branch to Kwang-cheng-tse to connect with the Kirin Road. While Japan might generously waive her interpretation of the secret protocol and permit the extension to Fakumen, without it resulting in any material damage to the interests of the South Manchuria Railway, she would naturally view with deep concern the establishment of a principle which would ultimately menace her present strategic and commercial advantage in Manchuria. So it is quite conceivable that the fair-minded, conservative statesmen at the head of affairs in London, would extend their moral support to Japan in this question, and cement the alliance for powerful political reasons, rather than be made the instrument of Chinese political intrigues, or be guided by an appeal to protect a contract which was so evidently negotiated by China, for the set purpose of creating discord in the harmonious relations existing between the Allies.

China has proposed to submit this matter along with other issues to the Hague for settlement, but Japan has refused on the grounds that it can be settled out of court through regular diplomatic channels. This would indicate that Japan is willing to compromise and permit the extension to Fakumen at least. China's rights to develop her own territory are indisputable, but in this instance China has again hampered her liberty of action by signing ambiguous agreements. The wording of the document leaves its construction open to argument, and until a compromise is effected on the definite meaning of "in the neighborhood of, or parallel to, and branches detrimental to the Japanese road," both sides can place a wide construction on their meaning. The best friends of China must acknowledge that she has entered the agreement with her eyes open, and fully realizing the evils that could arise from a selfish interpretation of this self denying clause. The censure if any is not applicable to Japan, but to the high Chinese officials who having past experiences nimind, allowed themselves to set their seal to such an agreement.

Japan has the upper hand and is in the position to act generously, but the tactics pursued by China in bringing this issue to the front, and in refusing to give Japan credit for any honorable intentions, must result in her maintaining her present position. China's persistance in magnifying trifling incidents into matters of grave international importance, coupled with the campaign of vituperation indulged in by the native press, will not tend to mend matters.

Other powers have placed their own construction on the wording of treaties with China, and have insisted on the acceptance of their terms. Here is a matter in which Japan can with dignity maintain her position, and it is difficult to see how any other power can consistently reproach her for insisting on the terms of the secret agreement. In the event of a failure to secure an amicable settlement, it is perplexing to see how China can reap any advantage from the bad feeling engendered by her attitude.

G. B. R.

MANILA HARBOR

The favorable report of Captain Austin of the Minnesota on the new harbor at Manila, after he had swung at anchor there and taken advantage of his opportunity to make a thorough investigation, has done much to counteract the misleading reports current in shipping circles. In addition to this, the careful investigation of the harbor by a part of shipping men, pressmen and officials under the direction of Editor Taylor of the *Manila Bulletin*, resulted in satisfying all interests that there is more water there than indicated on the latest charts.

The result of the investigation also led to certain recommendations that are being carefully considered by the authorities and if approved will mean the closing of the gap and the better regulation of berthing vessels. The closing of the gap will give more protected space for anchorage during the monsoon season and the expenditure of a small sum would increase the depth and width of the channel round the end of the breakwater so as to accommodate any vessel. Then the regulations of the buoys under government control so that vessels could easily find their respective berths without confusion and in the order of first come first served, would be greatly appreciated.

Every effort is being made to meet every requirement of the shipping trade at Manila and the authorities have always encouraged foreign masters to register their criticisms so as to have the advantage of their viewpoint, since they are the men in the best position to appreciate any undesirable condition or unnecessary restriction.

COPPER MINING IN INDIA

The Semi-Independent State of Sikkim, situated just beyond Darjeeling and between that Hill Station and Thibet, is not only noted for its grand scenery, but is, owing to the enterprise of Messrs. Burn & Co., Ltd., of Calcutta, likely soon to be a factor in the copper production of the East.

A large number of copper mines have been located and some of them systematically developed for the last eighteen months with most favourable results, under the direction of Mr Charles Wilkinson, Mining Engineer.

The ore occurs in the form of copper sulphides, both in lodes and bedded deposits, and although these are not phenomenally rich, they are highly payable from a commercial point of view, averaging from 5 per cent. to 10 per cent. of copper throughout.

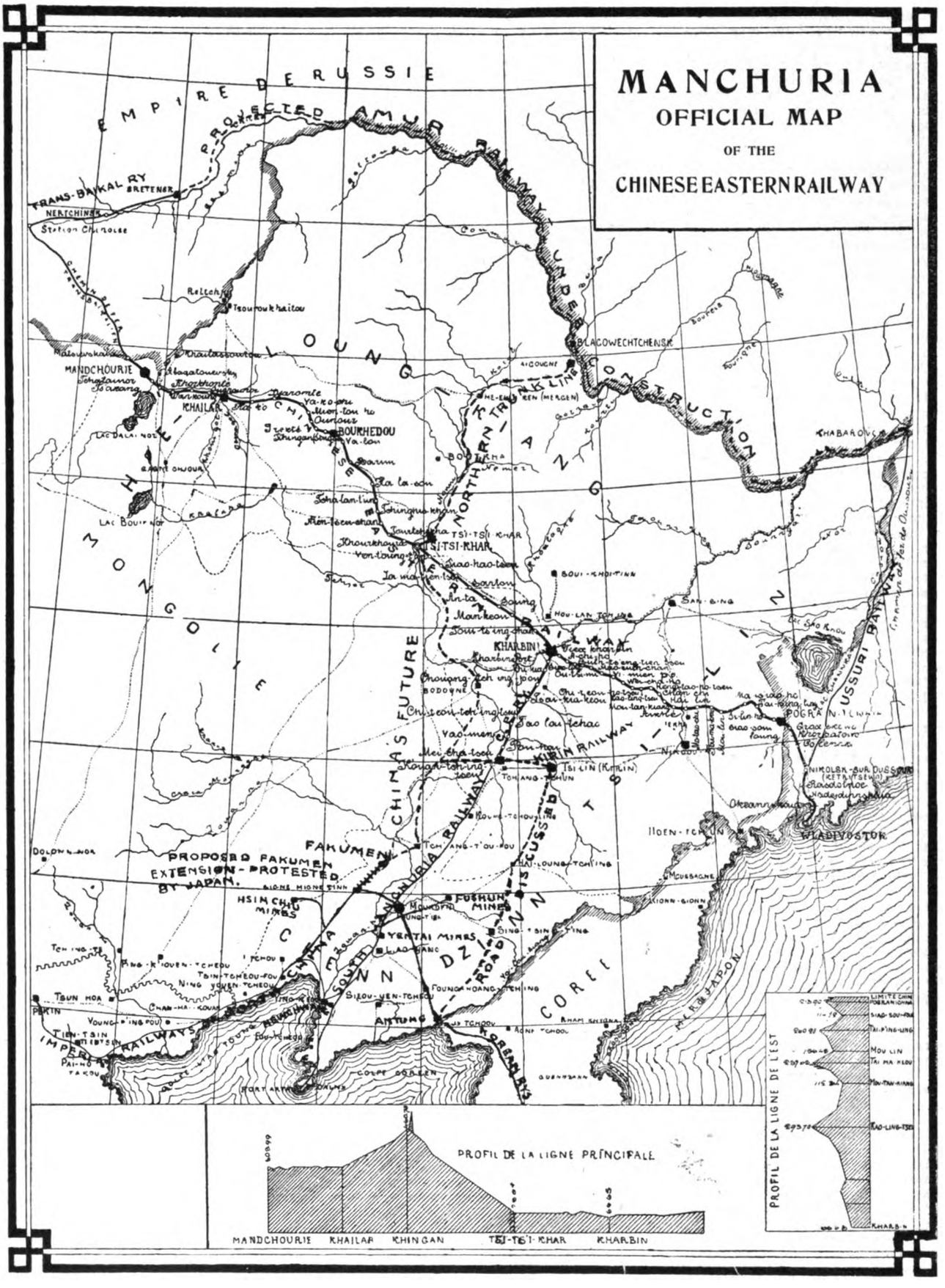
The copper ores are found in what is known in Indian Geology as the Daling beds of slates, and schists.

At Bhotang Mine, systematic development has disclosed several payable lodes, and the bottom of the winze 400 feet below the outcrops on the hill is now on a payable sulphide lode of 4 to 5 ft. in thickness.

Another rich sulphide lode, Dik Chu, has been traced for several hundred feet, and a tunnel driven on the strike of the lode into the hill is in payable mineral for the whole distance.

Altogether, close on 65 acres have been taken up, making a total of close on 8,000 acres which will be brought up to 32 square miles of country, in every half square of which is a copper deposit or lode, all held under the Indian Government regulations in Leases and Prospecting Areas.

Messrs. Burn & Co. have secured rights for water power, timber for charcoal making, and mining and building on most favourable terms. The labour is cheap and most efficient; the miners are mostly of the Mungar caste, who have for generations worked the surface for copper.—*Capital.*



THE STRUGGLE FOR AN EMPIRE

The above map illustrates present railway situation and the struggle for the commercial and political supremacy on the part of Russia and Japan, and China's plan to regain her lost advantages by the projected construction of the Fakumen branch, and its contemplated extension northwards to Tsitsihar and the frontier at Aigun.

The Treaty of Portsmouth, which gave the South Manchuria Railway to Japan, also prohibited Russia from employing the Chinese Eastern Railway for the transport of troops or other strategic purposes In the event of future hostilities, Japan could quickly seize the main line of Russian communication, and isolate Vladivostok and Eastern Siberia. Against this contingency, Russia is now building the Amur Railway, entirely within her own bounda-

ries, and far removed from the possibility of Japanese attack, which will insure open communication with the Pacific.

The Russians are claiming the right of administration in the towns along the mainline of the Chinese Eastern Railway, in accordance with the terms of the standard text of the French version of the original agreement for the construction of the road, which is being bitterly opposed by China, who claims that no such authority was included in the agreement, and it fails to appear in their copies of the document. China has the moral support of all other nations with the exception of Japan in her side of the question. As the agreement in question controls the status of the South Manchuria Railway, Japan will derive the same advantages in her zones if Russia's contention is accepted. This means that China has signed away her own rights within her own territory, thus creating an empire within an empire, leading to an eventual loss of her sovereign rights in Manchuria.

The map also clearly reveals the underlying motives of China and Japan in the much discussed Fakumen Railway dispute. Here again China bound herself by an ambiguous secret protocol with Japan not to construct any railway in the neighborhood of, or parallel to, the South Manchuria Railway which would compete with it. As the latter road is the only tangible asset secured by Japan as a result of her victory over Russia, she is zealously guarding its interests. After China had secretly signed the above article in the protocol, she entered into negotiations with a British firm of Contractors to build the Fakumen extension, and with another powerful British financial corporation to supply the funds, well knowing that the construction would be opposed by Japan as a violation of the agreement. In the light of subsequent events it is quite clear that this move was made only after mature deliberation on the part of China, as the idea emanated from the mind of H. E. Tang Shao-yi, who was one of the Chinese officials present at the discussion which led to the signing of the protocol. By enlisting British support and co-operation, the purpose was undoubtedly to influence Japan's consent by pressure from her ally. Japan's opposition is not based on the actual competition which the short extension would create for the South Manchuria Railway, but on the purpose of China to further extend the road northwards, to Tsitsihar and Aigun, with a contemplated branch to Kwang-cheng-tse or Changchun to connect with the Kirin Railway. To cede the present point to China, and establish the principle, would ultimately lead to the more important extension northwards, which would not only seriously compete with the Japanese Railway, but would constitute a standing strategic menace in the event of future hostilities. As China has already signed away her rights—although worded ambiguously—Japan is holding her to her agreement, as a protection against future complications.

On the other hand China maintains that although her representatives signed the protocol, there was never any intention on their part that she would be prohibited from constructing further railways to develop her own country. Both sides appear to have considerable just grounds for their attitude, for a glance at the map is sufficient to see that the real Chinese scheme will seriously imperil Japan's interests in Manchuria, while the natural development of her territory and free communication with her Manchurian capitals is essential to China's progress. China has proposed to submit her troubles with Japan to the Hague, but Japan has refused, stating that the matter can be settled diplomatically.

The situation is one which, if allowed to continue, must sooner or later lead to strained relations. The natural solution of both questions is for China to purchase the Russian and Japanese roads, at whatever cost, and so regain control of her territory. Russia has been approached on the question, and has refused to consider it, unless China pays her price with money raised in her own country, without resorting to a foreign loan, which means that China in her present impoverished condition cannot comply. Japan is making vast expenditures to improve the South Manchurian Line and the Fushun Mines, and would not entertain any proposal for relinquishing her rights unless handsomely reimbursed, on the same lines as Russia—with money raised in China. The resort to a foreign loan would simply mean that other nations would gain the prestige in China lost by either Russia or Japan. Under the present financial system, China is too poor to ever hope to purchase her lost rights, and her statesmen are daily inventing new schemes on which to spend the revenues. If the revenues were honestly administered, there is no doubt that China could save herself by her own efforts. The millions in treasure left by the late Empress Dowager could be put to no better use than repurchasing the rights which her ministers and advisers so freely gave away.

—G. B. R.

AGREEMENT BETWEEN THE CHINESE GOVERNMENT AND THE RUSSO-CHINESE BANK FOR THE CONSTRUCTION AND MANAGEMENT OF THE CHINESE EASTERN RAILWAY.

Imperial sanction received by the Chinese Envoy to Russia, Hsu, dated 29th August, 1896. Agreement signed 8th September, 1896.

1.—China and Russia establish a Company, to be called the Chinese Eastern Railway Co., to construct and manage this railway. The seal to be used by the Company will be issued by the Chinese Government. The regulations of the Company will be in conformity with those of Russian Railway Companies. Shares may only be bought by Chinese and Russians. The Director of the Company will be appointed by China. His remuneration will be provided for by the Company. He may live in Peking. His duty will be to supervise the task delegated to the Company by China, and to ascertain whether its obligations are faithfully performed. All business between the Company and the Chinese Government or any Chinese officials, either in Peking or the provinces, will also be managed by the Director. The Director will also investigate from time to time the accounts of the Company with the Chinese Government. An agent must be stationed in Peking for convenience of consultation.

2.—For the purpose of surveying the course of the railway, the Chinese Director will depute an officer to act in conjunction with the Company's Engineer and the local officials along the line of route, who will arrange matters satisfactorily. Measures must be taken to pass round all houses, graves, villages, and towns on the course of the railway.

3.—Within twelve months of the issue of an Imperial Edict sanctioning this Agreement the Company must have commenced work on the railway; and within six years from the date of the completion of the survey for the line and the handing over to the Company of the necessary land the whole line must be completed. The gauge of the line must be that of the Russian Railway, *i. e.*, 5 Russian feet, equivalent to 42⅔ Chinese inches.

4.—The Chinese Government will order all local officials concerned to do their utmost to assist the Company in regard to all material required for the construction of the railway, in engaging laborers and boats, carts, men, and horses for transport purposes, and in the purchase of grain and fodder. All these must be paid for by the Company at market rates. The Chinese Government will also afford facilities for transport.

5.—The Chinese Government will take measures for the protection of the line and of the men employed thereon. The staff, Chinese and foreign, necessary for the line will be engaged as required by the Company. All crimes and lawsuits arising on the land of the Company will be dealt with by the local officials in accordance with Treaty.

6.—As regards the land required by the Company for constructing, managing, and protecting the line and adjacent land, for procuring sand, earth, stones, and lime, if the land be Government land it will be given the Company without payment. If privately owned, the Company will provide funds for payments to the proprietors at market rates, either in one payment or as yearly rent. All the Company's land will be exempted from land tax. As soon as the land comes under the management of the Company they may erect thereon any buildings and carry on all kinds of work, and they may establish a telegraph line thereon worked by the Company for the Company's use. With the exception of mines, for which special arrangements must be made, all receipts of the Company for transport of passengers and freight telegrams, etc., will be exempt from all taxation.

7.—All materials required by the Company for the construction and repair of the line will be exempt from taxation.

8.—All Russian troops, naval or military, and munitions of war, moved by the Russian Government by this railway, must be conveyed by the Company directly across the border. Apart from slight detentions *en route*, incidental to transfers, no other delays will be permitted for any cause.

9.—Any foreign passengers by this line who may proceed into the interior away from the railway must be provided with Chinese passports authorizing them to proceed. Any person unprovided with such passports must be forbidden by the Company to proceed into the interior.

10.—All goods and baggage coming from Russian territory, and again entering Russian territory by this line, will be exempt from taxation, but such goods and baggage, with the exception of personal luggage with passengers, must be carried by the Company in special vans, and sealed by the Customs officers on entering Chinese territory, and on leaving Chinese territory they must be examined by the Customs officers to ascertain that the seals are intact, in which case they will be allowed to pass. If it be found that the seals have been opened *en route* the goods will be confiscated.

As to goods conveyed by this line from Russia to China or from China to Russia, they will pay duty according to the Treaty tariff, *i. e.* an import or export duty, as the case may be, but subject to a reduction of ½ of the tariff rate. If such goods be conveyed to the interior they must pay transit duty in addition, *i e.* half the amount of the duty already paid. Transit duty being paid, they are not to be taxed again on passing Customs stations or likin barriers. But if transit duty be not paid they must pay duty at stations and at likin barriers. China must establish Customs stations at the two points where the line crosses the frontier.

11.—Fares for passengers, freight for goods, and charges for loading or unloading will be fixed by the Company. Chinese Government despatches and letters must be carried by the Company free of cost. Chinese troops and munitions of war will be carried at half rates.

12.—From the day of completion of the railway and the commencement of traffic, for a period of eighty years, all profit made by the line shall belong to the Company solely. Any loss must likewise be borne by it; the Chinese Government cannot be responsible. After eighty years the line and all its property are to revert to the Chinese Government without payment.

Thirty-six years after commencement of traffic China may take over the line on payment of the following and all capital and all moneys owed on account of the line and interest. As to profits made by the Company, should there be any not distributed to shareholders, these must be taken to be capital returned and deducted from the price paid for the line. China must actually pay over the amount of purchase to Russia before receiving possession of the line.

On the day the line is completed and traffic commenced the Company will pay the Chinese Government five million Treasury taels.

THE GREAT ADMINISTRATION BUILDING OF THE C. E. RAILWAY.

HARBIN: THE AFTERMATH OF RUSSIA'S ADVENTURE

(Continued from page 417.)

following the crooked Amur River in the endeavor to seek an outlet to the sea. At the same time it created a new line of attack and approach to the goal at Peking, and the ultimate absorption of Korea. In the spring of 1897 the work of construction was commenced, and in the same year the city of Harbin was founded and made the administrative and working headquarters of the new enterprise. Harbin, the railway center of construction, was the ideal location for the concentration of material and forces, and was to be, in addition, the strategic center of Russia's new empire, and but for the unexpected war with Japan her purpose would have been crowned with success. From armed guards and administrative control to permanent occupation and annexation was only a short and easy step with decrepit old China, and Harbin was to be the center of the web which would enmesh the Three Eastern Provinces. From the new base Russia was to dominate Far Eastern trade, and Harbin was to become the Moscow of Asia, the Minneapolis of the Far East, and the Chicago of the Orient, and the products of her mills would be distributed by the railways radiating from the new city, and the network of waterways connecting with the Sungari.

So the city was located on the banks of the Sungari River at a point where the railway was to cross the stream, and where the connection southwards to Dalny was afterwards to be made. Situated 350 miles west of Vladivostok, and 600 miles north of Dalny, it was in the geographical center of Manchuria. When work on the railway at the eastern and western ends was commenced, vast stores of material were shipped by river craft up the Sungari to the new town so that work could also proceed from the center.

According to the most authoritative reports, before this there was no native settlement in this vicinity, so that Harbin, as it stands to-day, is a purely Russian product laid out by the railway engineers. The original town, or old town, is located three miles from the present railway depot: Pristan, or the river town, is located on the side of the railway bordering on the river, and is the present commercial town. Then there is the official city or district in close proximity to the Railway station, where all the public buildings, offices, hotels, etc., are located. There is also a purely Chinese town about four miles from the official district, which is the headquarters of the present Taotai.

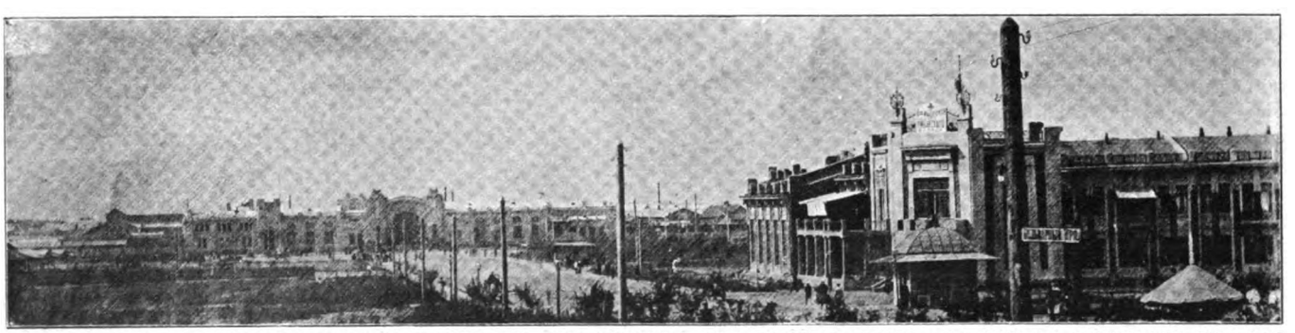
Here, in the short space of ten years, Russia has created a city which at one time promised to be the greatest manufacturing center of Asia. Here a metropolis was planned and built up with official approval and revenue, and every inducement was held out to the Russian trader and manufacturer to locate. Wide streets were laid out and paved, electric lights installed, fine large official buildings, railway clubs, hotels and schools were erected, immense car and machine shops equipped, and every bait offered the confiding Russian capitalists to purchase lots and cast their fortunes in with the new adventure. Laborers flocked from all parts of Siberia and Russia, mechanics and their families were sent out by the hundreds, on steamers from the Black Sea. Regiments of Cossacks and Railway Guards were dispatched to the new military center to police the line and work of construction, and repulse the attacks of the Hunghutzes. In their wake came the demi-monde, music hall artistes, and the horde of adventurers who follow an army and flock to new pastures. The town rapidly outgrew its original delimitations, and further land was added to meet the expansion. The rich Siberian Jews, attracted by the opportunities for quick and handsome profits, lost no time in establishing themselves in the new city. Land increased rapidly in value, houses were at a premium, and excessive rents and cost of living came as a natural sequence.

The old town was the first to be thrown open by the Railway Company for the purchase of land by private parties, at a rate of a little over one cent gold per square foot, but the price was soon raised to three cents per foot and over; the official town was then laid out and immense building plans entered into, while in the river town the prices soared to over 17 cents gold per square foot, and many large and substantial brick buildings were erected. Within a year from the time this section asw opened to the public, it is estimated that over $5,000,000 gold was expended in building operations by the public. Additions were laid out adjoining the administrative town, and the land was immediately taken up by speculators and resold at prices as high as $5.00 gold per square foot. Nearly 3,000,000 roubles were received by the Railway Company from the sales of lands to private parties in a couple of years, all secured on an eighty-six years' lease.

Naturally capital was poured into the new city by the Jews, and many Chinese also furnished considerable money to finance new undertakings and erect buildings. With the rapid progress of construction calling for an army of skilled and unskilled labor, coupled with the demand for railway work, and the constant increase in the military and official element, the boom progressed and prospered. Theaters, music halls, and brothels abounded. Above all else the easy-going Russian loves his pleasure, and this side of his nature was amply catered to in the heyday of Harbin's career.

Then followed the industrial boom. With a country rich in wheat and cereals, minerals and timber, flour mills, mines and saw mills were projected and erected. Breweries followed, vodka factories for the soldiers, meat packing plants and other large schemes were promoted. Prosperity was in the air. Everybody seemed to have money, and it was spent like water. Easy come, easy go. The Government was rich, and St. Petersburg was far away, and the high officials were too preoccupied with getting their share of the official "squeeze" to pay heed to the petty "graft" of the lesser employees, and the saturnalia whirled on with no thought of the morrow, or of the day of reckoning. It was a good thing, and it had to be carefully nursed and preserved. Russia for the Russians, and Manchuria for the elect, and out with the foreigners

Harbin was Russian to the core. Treaty stipulations and other foreign rights were not known, or were they known, were as contemptuously ignored. It was as distinctly a Russian city as though located on the Volga. The same obnoxious laws were implanted and enforced. Foreigners were practically excluded or only permitted to remain on sufferance. Passports were necessary to visit or remain in the city, and the same irritating domiciliary police regulations enforced in Russia were placed in operation. None but Russians or

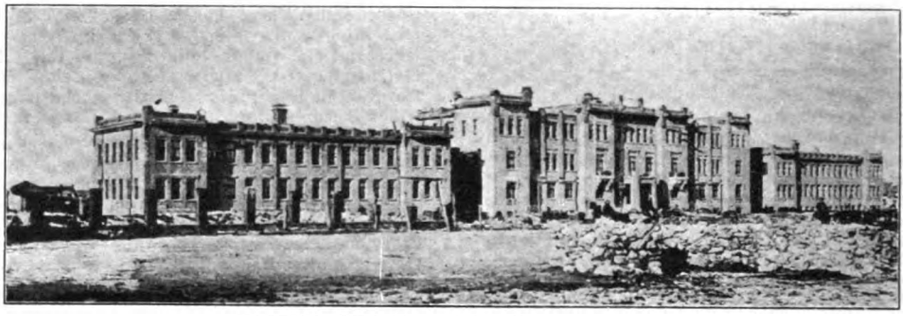


HARBIN: THE MAIN STREET LEADING TO THE RAILWAY STATION. THE OFFICIAL HOTEL AND RUSSIAN CONSULATE GENERAL TO THE RIGHT.

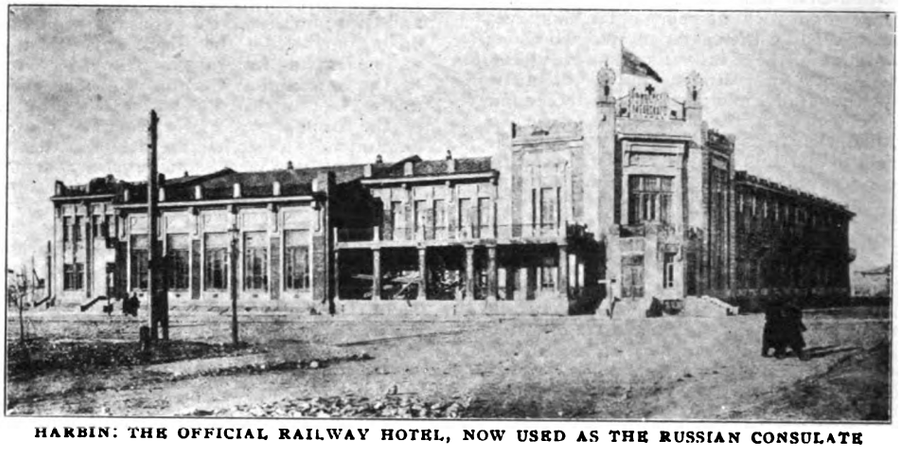
Chinese could hold land, construct buildings or engage in any permanent business. The foreigner could, however, by waiving all his rights, be allowed to establish himself in certain lines of trade. The beneficent Railway Government would go so far as to grant him certain privileges, provided he signed a document binding himself to faithfully observe all the obnoxious Russian regulations, and failing in which, at any time, his property could be forfeited, and all his buildings demolished at the will of the Railway Manager. And, furthermore, the fortunate foreigner who so far forgot his self-respect to submit to the foregoing, was further requested to sign another document exempting the Railway management from any claim for damages arising from such a situation, and the Consul of the nation to which he belonged was expected to countersign such a surrender of rights before he could start business. No white man could tolerate such impositions on his rights, and no consul would for a moment dare to witness or indorse such a document, which recognized absolute Russian jurisdiction. Is it any wonder that Russia had the field all to herself, and no foreigner attempted to establish himself in business in the new Moscow. Not only were the extra territoriality rights of foreigners in other parts of China studiously ignored, but the Chinese themselves were denied the jurisdiction of their own officials. "Exclusive and absolute administration of the railway lands" was interpreted in the sense that China had abandoned all rights and jurisdiction in her own country, and foreigners were to conform to the laws of Russia, in the heart of Manchuria. All the land suitable for foreign settlement for miles around was appropriated and included in the railway zone to prevent foreign interests from gaining a foothold in the district. During the Boxer troubles, a further extension of the Railway zone was effected. In 1901 the population had grown to 12,000 Russians, and increased to 60,000 by the autumn of 1903, exclusive of soldiers. The Railway employees alone numbered over 11,000. The Chinese population was about 40,000 living in a separate town. The state of affairs in Harbin at this time can be better appreciated by the fact that out of a total of 400 Japanese inhabitants about 350 were women, while of the entire Russian population of 60,000 over 40 per cent. or 24,000 were females.

Then came the war. The immense armies of the Czar, transported across Siberia, came to a halt at Harbin and were here encamped and forwarded on to the front as their time came. Here was the real military headquarters, here was the base, in which the commissariat, and quartermaster's stores were stacked up for reshipment further south. For the Russian the war began when he left Harbin for the front and ended when he returned. Here the officers left their families, some wives, some mistresses, and here the camp follower halted and went no further, here the gamblers and sharpers plucked the easy going and good natured soldier, and the commercial adventurer divided the loot with the mercenary official. To Harbin swarmed the women, who made it their abode, bringing with them the luxuries of Paris and the life and atmosphere of the boulevards. Theaters multiplied, cafés chantants were in full blast, drinking saloons and pleasure resorts abounded. No less than 26 music halls catered to the pleasures of the soldiers, running day and night

HARBIN: THE RAILWAY STATION.



HARBIN: THE ADMINISTRATION BUILDING.



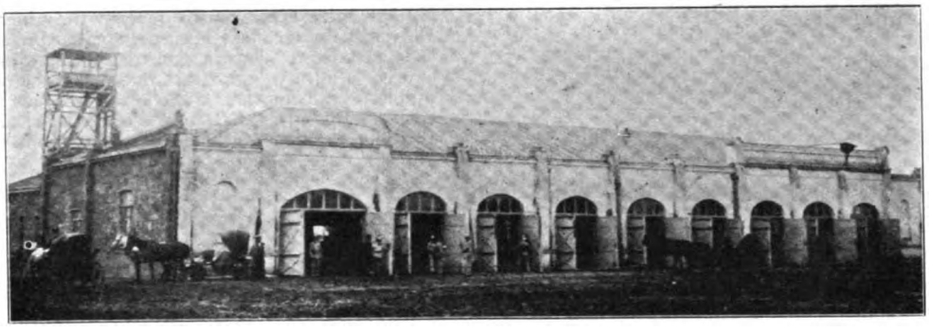
HARBIN: THE OFFICIAL RAILWAY HOTEL, NOW USED AS THE RUSSIAN CONSULATE GENERAL.

HARBIN: THE RUSSO-CHINESE BANK AND MANAGER'S RESIDENCE.

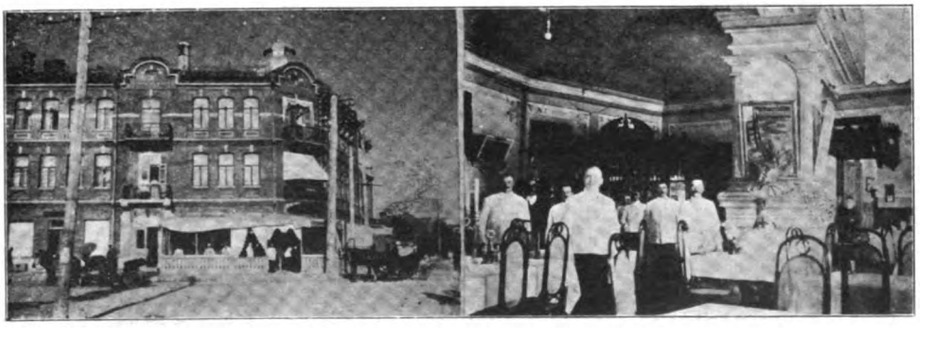
HARBIN: FRONT VIEW OF RAILWAY DEPOT

HARBIN: STREET TO RAILWAY STATION. THE RUSSO-CHINESE BANK TO THE RIGHT

HARBIN: COMMERCIAL STREET, PRISTAN



HARBIN: FIRE DEPARTMENT



HARBIN: THE GRAND HOTEL DU COMMERCE

without pause. The pace was swift, life was short, and extravagance and recklessness the order of the day. Champagne flowed like water. Magnums took the place of the ordinary pint or quart bottles. They cost more and the money would go quicker. Officers ordered to the front squandered their savings or year's pay in one last wild orgy, drinking the cup of pleasure to the last drop, and those lucky enough to return started in to make up for the lost time and hardships at the front.

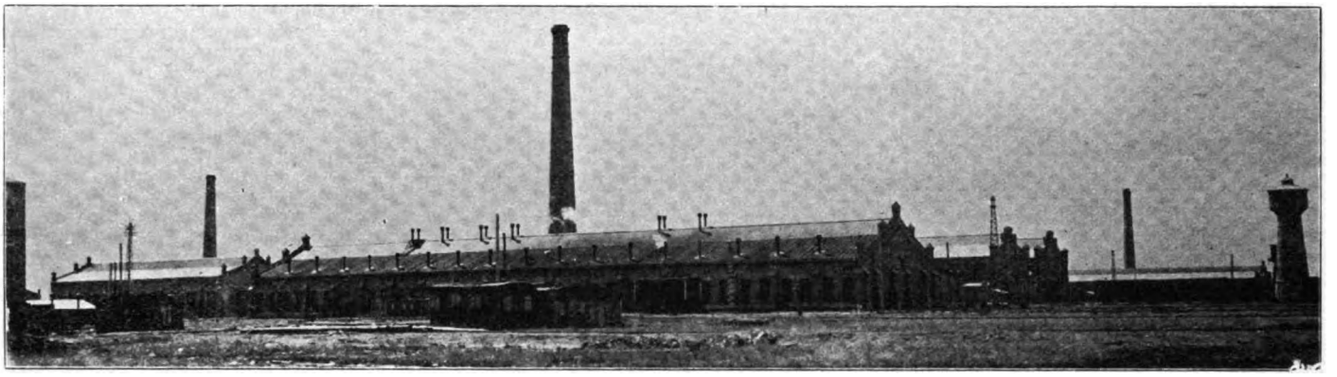
A rough, lawless element entered with the army, and made life unsafe despite the presence of the disciplined soldiers.

Houses were at a premium, lands rose still higher in value, and fortunes were made in real estate and building transactions. Chinese and Jewish money lenders flourished, jewelry dealers were reaping a glorious harvest, and fashionable drygoods stores carrying the latest and most expensive stocks of feminine wear did a thriving trade.

In the midst of the whirl, the industrial boom war born. Flour was expensive. The railway from Russia was choked with troops and urgent war material and the Japanese cruisers made it difficult to procure supplies from the sea, so with a country rich in wheat, flouring mills offered a solution, and the money for their erection was readily forthcoming. As long as the army remained the market was assured and large profits possible. It is calculated that 85 per cent of the fodder and provisions supplied were of local production. No thought seemed to be given to a return to normal conditions nor it appears was any attempt made to secure a market for the by products. The investment was made on the demand created by the army, and shareholders seemed to labor under the impression that the abnormal conditions would obtain indefinitely. Breweries, four of them were hastily erected; vodka distilleries, eight were placed in operation; meat packing establishments, brick making plants, saw-mills, a glass factory and other industries were rapidly financed and carried through. Profits were enormous, and expenses were saddled on the enterprises in accordance. High salaried Director Generals, Directors, Managers, Superintendents, and a host of sinecures were created and fastened on the companies before the real practical head of the concerned was reached. It is stated the administrative cost of the milling companies averaged 37 per cent of the total. Everything was lovely, and as long as the boom lasted, no one cared to look ahead for the hard times coming.

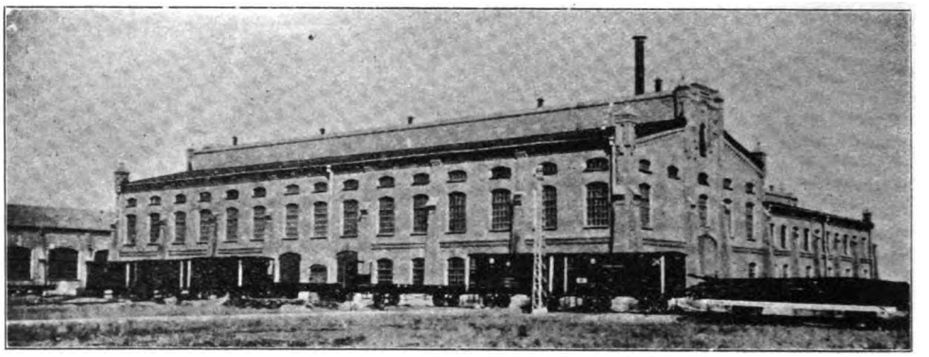
The fever of making the city a great manufacturing center, a Moscow in Asia, possessed the railway management, and every system of promotion and protection that could be devised to increase its growth along these lines was energetically encouraged. The administrative city was planned on a grand scale and some of the finest buildings in the East erected. Over 30,000,000 roubles went into official edifices. The great Administration headquarters, housing all the offices of the Railway, three stories in height, with a floor space of over 4 acres, was built at a cost of over 1,500,000 roubles. The railway shops were designed on a liberal scale, and equipped at a cost of over 2,500,000 roubles, hospitals costing 700,000 roubles, railway club house, 375,000 roubles, railway or official hotel, 165,000 roubles, and nearly a million in schools. Commercial High Schools, a Technical School, and several minor schools were constructed, and last but not least the handsome stone edifice of the Bank, the father of the entire scheme. In addition, the long rows of brick dwellings, barracks, officers' houses, the fine residence of the Commanding General, the Headquarters staff of the Amur, the unique architectural freak of a railway station, hotels, churches, synagogues, private houses, the solid looking and attractive department stores, and the tall chimneys of the mills, electric light plant and the car shops, gave the town a truly up to date business-like appearance.

In addition to the great traffic of the railway, the Sungari River was at this time a busy artery of trade. From Harbin to the Amur River good sized river steamers carried on an immense traffic. Steamers loaded with large

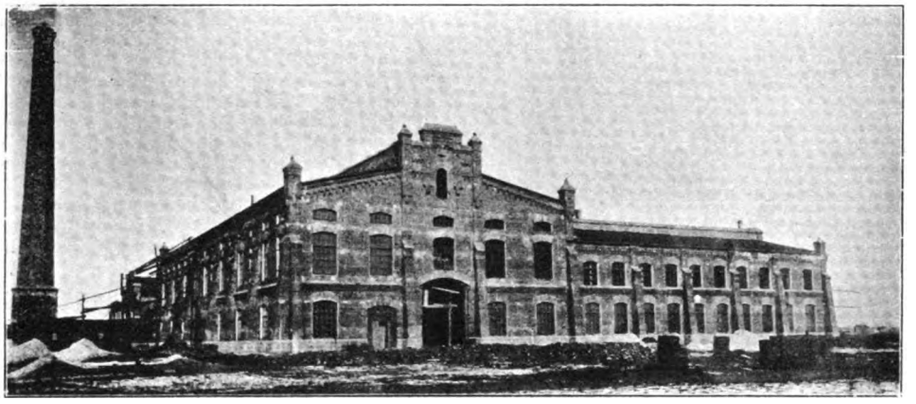


RAILWAY CAR SHOPS, HARBIN

cargoes, and towing a line of laden barges, dumped their freight out on the banks of the Sungari at Harbin and contributed to the general prosperity. Lumber from the Amur, and miscellaneous stores from Vladivostok and the river ports were strewn along the banks, so that the appearance was similar to the beach at Nome during the gold rush. From Harbin to Harborovfsk at the mouth of the Ussuri River on the Amur, the trip by steamer occupied 5 days, and here connections were made with the Ussuri Railway for Vladivostok. The Chinese Eastern Railway Company and the Amur Steamship Company kept a large fleet of the light draft, wood burning, stern wheel river steamers at work carrying freight and passengers between the two points, the former at an average charge of $4.00 gold per ton.



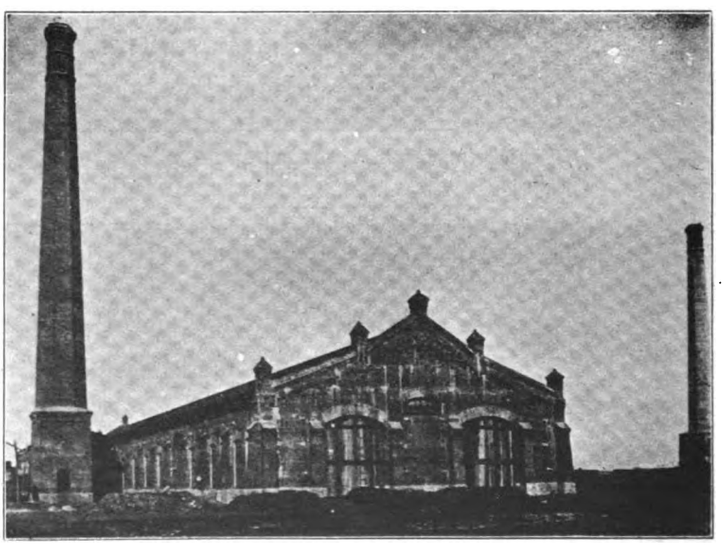
CHINESE EASTERN RAILWAY, MACHINE SHOPS, HARBIN



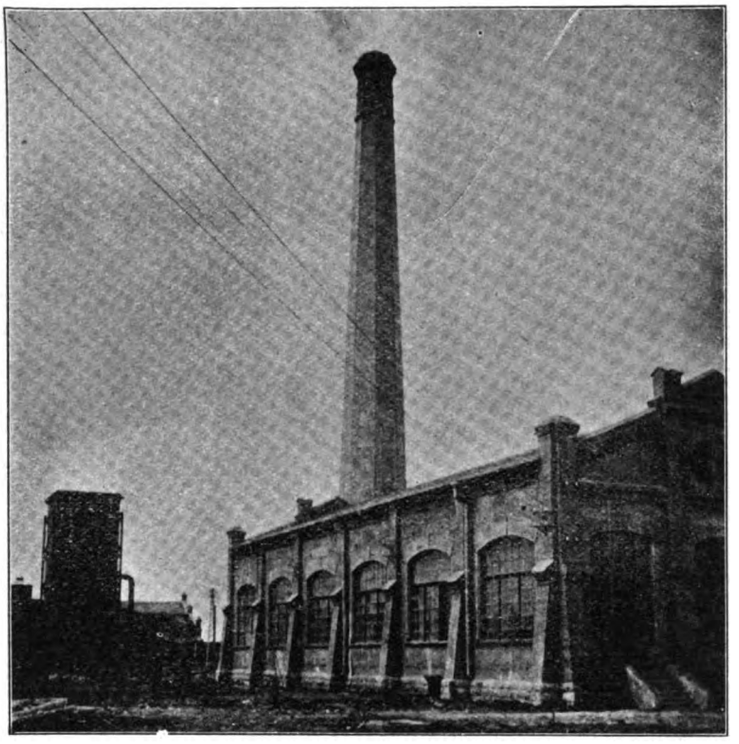
RAILWAY SHOPS AT HARBIN

The volume of traffic of the combined railway and steamships was immense, and it was almost impossible to handle the freight and properly store it. Vast piles of freight were dumped at convenient points. The streets of the town were choked with carriages, automobiles appeared, and an electric tramway company was organized to connect the different sections of the sprawling metropolis, and on all sides blocking traffic was the ever present clumsy Manchurian cart, with its five to ten draft animals.

And behind all this whirligig of pleasure, vice, war, and industry stood the Russo-Chinese Bank, the magician that had waved the wand and brought it all about. Housed in its fine structure of stone, having its own heating plant and electric lights, erected at a cost of over 200,000 roubles, the Bank was the center, the hub around which Harbin revolved. Making no loans on realty, the management confined its efforts to advancing capital for current substantial business, and extending credits to Chinese merchants purchasing stocks of Russian goods, in addition to the regular exchange business. The results were profitable. Exclusive of purely government and railway business, the daily transactions exceeded 500,000 roubles just prior to the war, and this must have been increased owing to the swollen volume of trade. Cotton goods, sugar and other Russian products were thus introduced into the Manchurian markets. Imported free of duty through Vladivostok, favored with special rates on the railway and long credits by the Bank, Russian goods threatened for a while to secure a firm foothold. Encouragement of all kinds was given to the Chinese and Russian merchants, but to no outsiders. Harbin was to be the entrepot for Russian trade in the East, and the Open Door was only a dream of foreign diplomats that did not embrace Northern Manchuria. Millions were necessary to develop the scheme and millions were lavishly expended to further the adventure. Russia poured into her Manchuria Railway schemes over 300,000,000 roubles, and another 250,000,000 roubles in erecting the cities of Dalny, Port Arthur, and Harbin together with the fortifications and other



MACHINE SHOPS OF THE C. E. RY. AT HARBIN

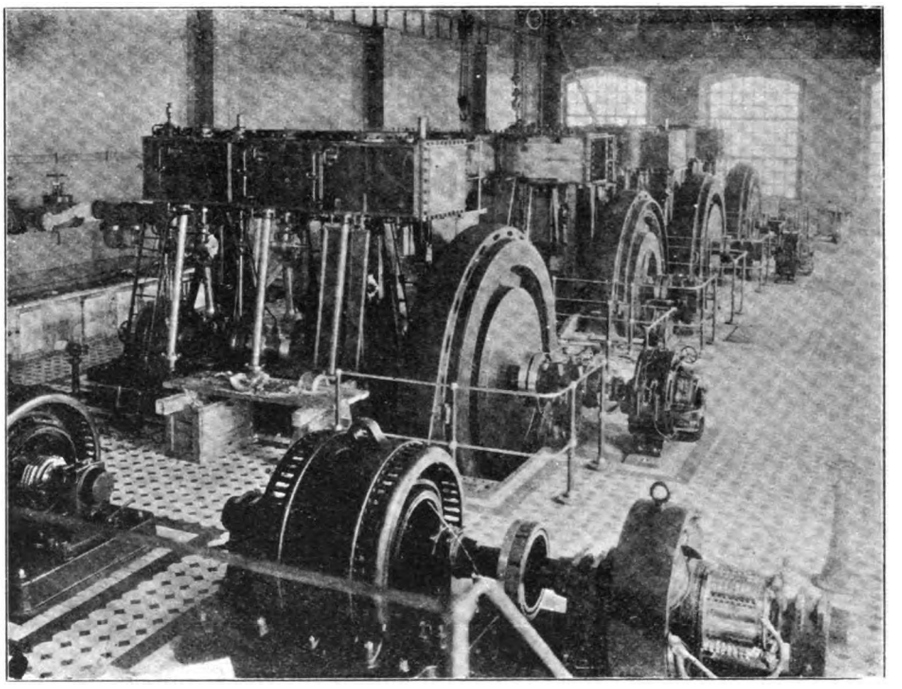


ELECTRIC LIGHT AND POWER STATION, HARBIN

permanent improvements. How much of this vast sum was actually expended no one will ever know. When the time came after the war for auditing the accounts, a convenient fire destroyed the building containing all the records, so the rendered figures had to suffice without comment.

The Treaty of Portsmouth came as a surprise to Harbin. Another few months and the tables would have been turned and the dreams of Empire realized. For Harbin merchants it was difficult to realize that the end had come, and as the aftermath set in and the soldiers returned to their homes and business began to decline, they still cherished hopes of a bright commercial future. The evacuation proceeded slowly. The limited facilities of the railway prevented a rapid homeward movement, so for a long while after the termination of hostilities, Harbin was still an armed camp. The enormous volume of business continued, and war prices prevailed. The large bodies of troops, freighted to Russia, seemed to make little impression on the merchants of Harbin. Thousands still remained, and the merchants refused to believe that the Government was earnest in the evacuation, and failed to realize the significance of the steady decrease. Stocks were increased, and the market overloaded. Sales, however, continued to diminish, as the soldiers gradually departed on their long journey, until only 50,000 remained of the vast army. The adventurers and harpies decamped taking with them the choice pickings of the harvest, leaving the hulks for the established merchant. It gradually dawned on even the most sanguine that conditions had changed, but they were unable to quit, as their capital was tied up in large stocks of merchandise and they had to hold on to recoup. No systematic or determined effort had been made by the Russian merchants to secure the native trade, despite the efforts of the Banks and the authorities to encourage and assist this movement. It was much easier and more profitable to cater to the good-natured, pleasure-loving, spendthrift soldier, than to get out and build up a trade with the economical and impoverished native. The Bank and the Railway whose future prospects and success depended on solid native trade, catered to this element, but with only nominal success. Russian kerosene, oils, matches, sugar, cotton goods, and cheap novelties were the only items of any importance dealt in. The purchasing power of the native was small, and Northern Manchuria is sparsely settled, and the market even for these necessities was limited. So with the eventual withdrawal of the Russian army, and the departure of the swarms of adventurers, camp followers and women, the merchants were face to face with the worst that could befall them—a return to normal times, and no market. The best customers for the flour mills, the breweries, and vodka factories were gone. The natives prefer their own crudely ground coarse flour, they don't drink beer or vodka, so the main industries of the city found no market for their output. The theaters, bereft of their patrons, closed; the music halls followed, and with the departure of the extravagant female spenders, the jewellers and department stores lost their best paying trade. Houses that were at a premium shortly before were vacated, new tenants came not, and a decline in real estate value followed. The costly block of stores, constructed in the center of the town for the largest Moscow merchants remained unoccupied. The brick factories and saw mills closed for lack of business. No one wanted to build. The glass factory suspended operation. The flour mills were forced to close down. One brewery remained at work. The hotels were emptied of their patrons. The large official hotel was converted into the offices of the Russian Consulate General. And so Harbin at last came to a realization of the exact state of affairs.

The town to-day presents an appearance of premature decay. Grass grows in the streets, no smoke issues from the tall chimneys of the mills. The large and costly stocked department stores open for the day and only a casual customer appears. Theaters have closed. Only one or two cafés chantants invite the midnight pleasure seeker, in place of the previous twenty-six. The houses are out of repair and the plaster ornamentation of many of the large buildings has fallen away disclosing the naked lath, revealing the fact that the buildings in part were only imitation stone. The town is existing on the expenditures of the railway. The salaries of the employees maintain the few stores, and the awarding of a contract for supplies is eagerly anticipated by the merchants. The railways and the Bank are making strenuous



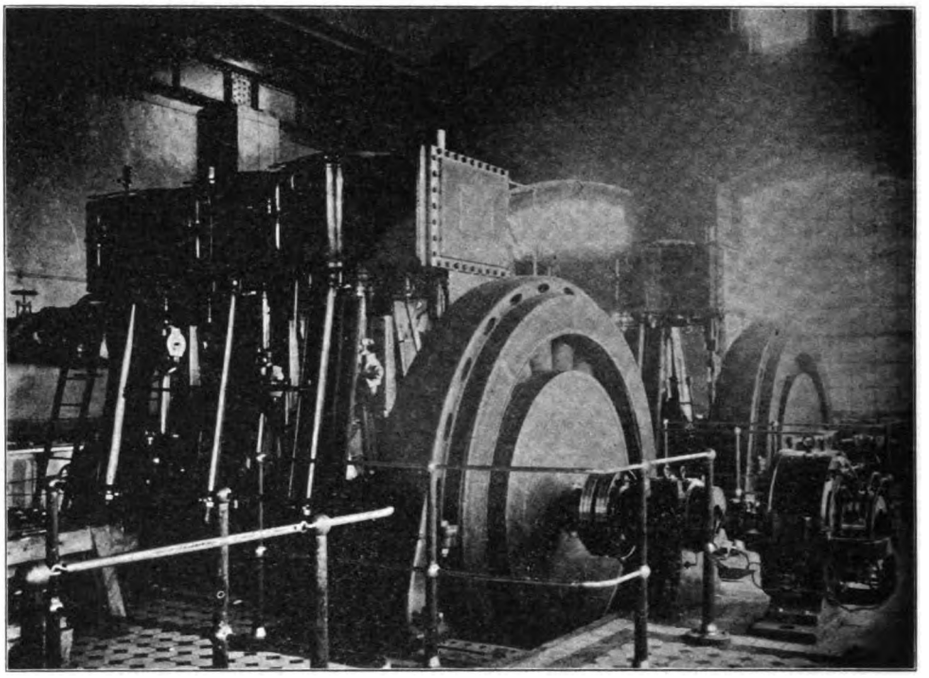
ELECTRIC LIGHT AND POWER STATION, HARBIN. GENERATING ROOM

efforts to renew a spirit of confidence and promote trade with the natives, but there is a lack of co-operation on the part of the Russian merchants. But powerful as they are, the Railway and the Bank cannot carry the load indefinitely. There must be an end. The last financial year of the Bank was closed without the payment of the customary dividend. The Railway is losing at the rate of 5,000,000 roubles per annum. The budget for 1908 was based on an estimated income of Rbs. 15,857,793: expenses (including Rbs. 625,388 interest on bonds) were Rbs. 19,265,110 or an estimated deficit of Rbs. 3,407,317. The actual deficit is, however, claimed to be in the neighborhood of Rbs. 5,000,000.

Yet there is apparently no sign of retrenchment. The Railway administration building swarms with employees, and extravagance is still the order of the day. War prices continue, or at least charges are higher in Harbin than in any other port of the Orient. Hotel charges, droshky hire, rents, and the general cost of living is at least double the cost in Shanghai.

And to complicate the general industrial depression, the political situation has been steadily increasing in intensity, and has now reached an acute stage. As already noted, Russia has interpreted the terms of the railway concession as giving the Railway company exclusive and absolute administration of the Railway lands or zones. This is according to the French text of the agreement. The Chinese claim that this stipulation was not in the original Chinese version of the document, and that during the occupation of Peking, their original was stolen from the records, and the Russians have since been acting on their own reading of the terms. Nevertheless the Russians have acted on this interpretation of the agreement, since they began their work of construction, and Harbin has been to all intents and purposes a part of Russia, and ruled under Russian laws.

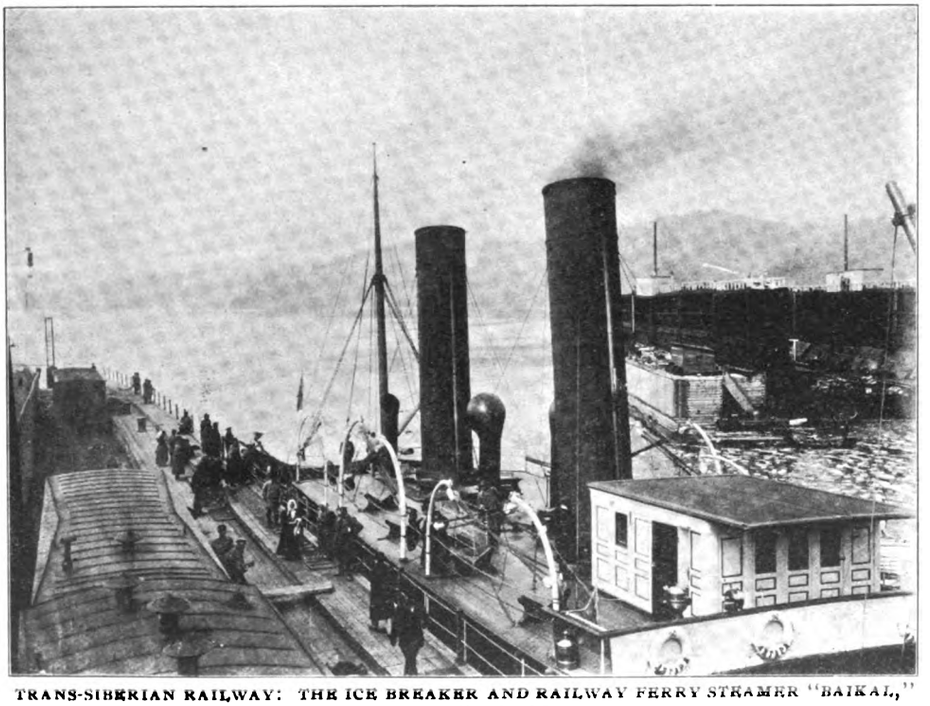
As a result of the war, Harbin was opened to the world as a treaty port of China, which gave to foreigners the right of residence and engaging in trade under the existing extraterritoriality laws prevailing throughout the Empire. A Chinese taotai was ordered to the new port, and a Consul-General sent out from Russia to take over the representation of her national interests. Right here a fierce internal dispute arose amongst the Russian officials. The head of the Railway, Major Gen. Hovarth, insisted that he was the supreme authority, while Luba,



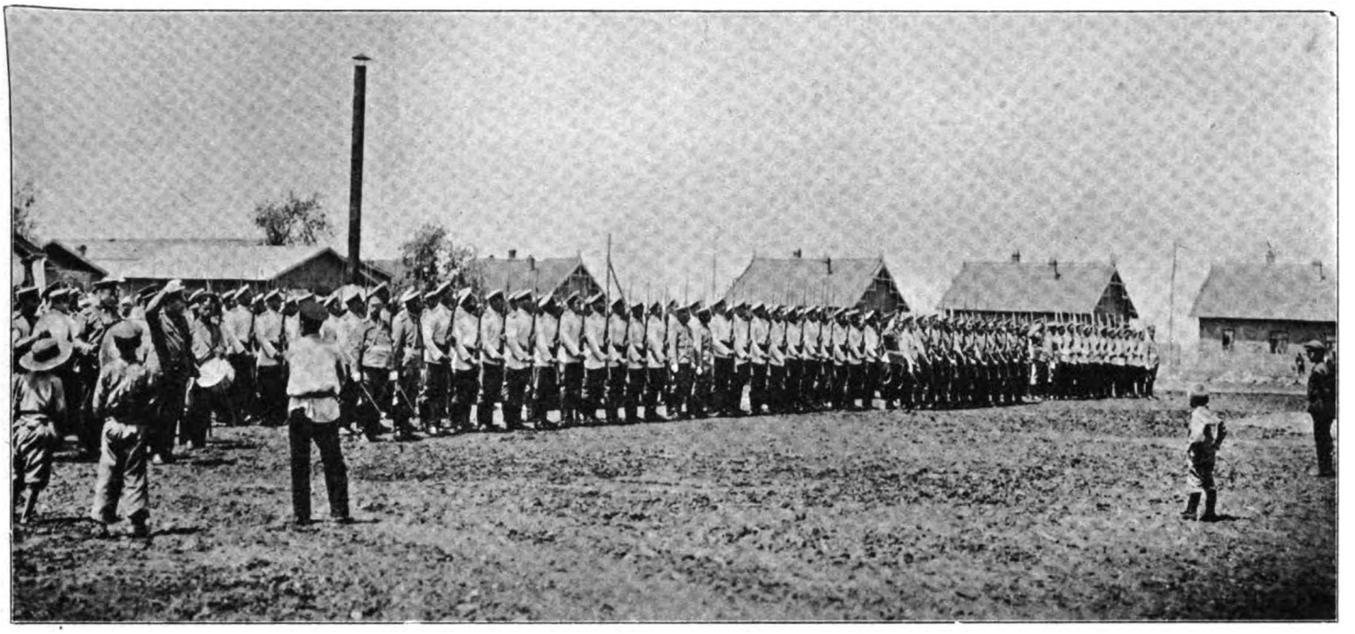
HARBIN: ONE OF THE GENERATING SETS IN THE ELECTRIC LIGHT AND POWER PLANT

HARBIN: CHOORIN AND COMPANY'S DEPARTMENT STORE IN PRISTAN

HARBIN: THE LARGE DEPARTMENT STORE OF CHOORIN AND COMPANY IN THE OFFICIAL CITY



TRANS-SIBERIAN RAILWAY: THE ICE BREAKER AND RAILWAY FERRY STEAMER "BAIKAL," AND FLOATING DOCK

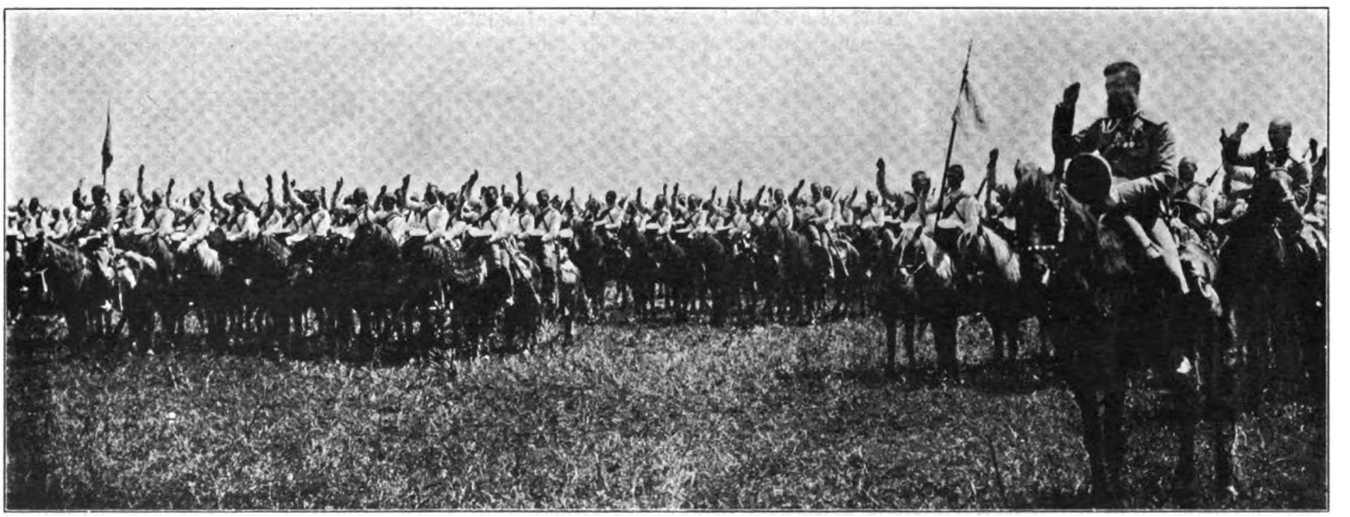


HARBIN: THE RAILWAY GUARDS AT INSPECTION

the new Consul-General, took the stand that as he was sent out to Harbin in that capacity, he would carry out his instructions, and defying the railway he stated that all judicial and other matters affecting Russian citizens would be decided by him. In other words, Luba, the representative of the Russian Government, refused to recognize the right of the Railway as a commercial company, to enforce its will and regulations and assume the functions of a governing power. The situation created was an impossible one for the railway, and the wires were pulled to have Luba removed. On a trumped charge of receiving bribes he was called to St. Petersburg to explain, and shortly afterwards Major General Hovarth was appointed acting Consul General in his stead, in addition to his position of chief of the Railway staff.

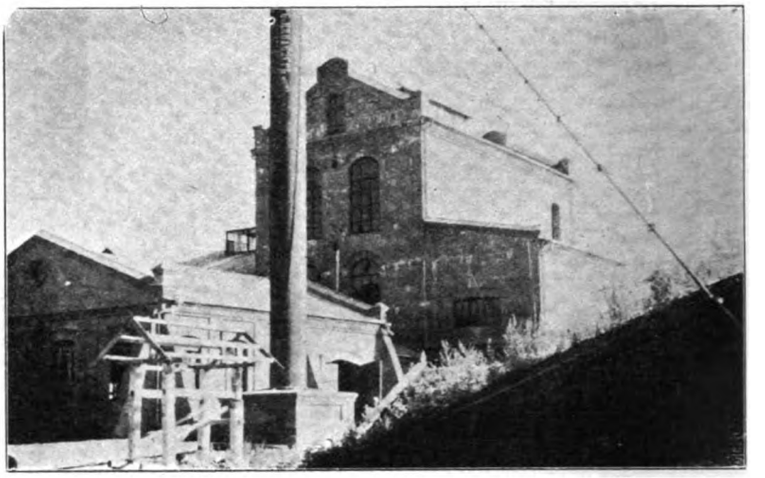
The United States and Japan sent Consular officials to the new port, and France appointed a consular agent. Great Britain and Germany refrained from creating a new consulate for the port, leaving their nearest representative to make occasional visits. The Russians again asserted their contention that Article 6 of the Standard text of the railway agreement gave them the exclusive and absolute right of administration in the Railway territories. The argument was brought forward, that Harbin was purely railway territory, that previous to the war the Town as such did not exist, and the ground covered by the present city was planned, laid out, and erected by the railway, or Russian or Chinese individuals who purchased land from the railway. The Harbin opened to the world as a Chinese treaty port must therefore refer to the Chinese town four miles away under the jurisdiction of China, and administered by the Taotai. The Russian Minister at Peking sent identical notes to his colleagues, to the above effect, requesting them to communicate the contents to their Consular representatives in Harbin and Manchuria. Japan alone of all nations, through its Minister at Peking, Baron Hayashi, supported the stand of Russia and instructed Consul General Kawakami at Harbin, that the right of administration in the railway zones belonged to the Railway Co., and to notify the Chinese authorities to that effect. Baron Hayashi, at the same time, secured from his Russian colleague a definite assurance that Russia would reciprocally recognize similar rights in the Japanese zones of the South Manchuria Railway, which operates under the same convention as the Chinese Eastern Railway.

This further complicated the situation at Harbin. Many Japanese had established themselves in business in Fu-tu-tien, the Chinese city. The Chinese Taotai attempted first to expel them, as the territory was not a treaty port, but the Japanese refused to budge. Then he attempted to levy the customary Chinese lekin tax on their business. The Japanese refused to pay, and were supported by their consul. A British firm then established itself in the native city to be nearer its customers, and the taotai attempted to levy the tax on their merchandise. This firm, seeing that their Japanese competitors paid nothing, took the same stand. The Railway said to the foreigner, you can't do business in Harbin, unless you recognize Russian authority and laws, and pay our taxes. If you want extraterritoriality get over to the native city, this is not a treaty port. The Chinese said to the foreigner, get out of



HARBIN: RAILWAY GUARDS AT SERVICE FORMATION

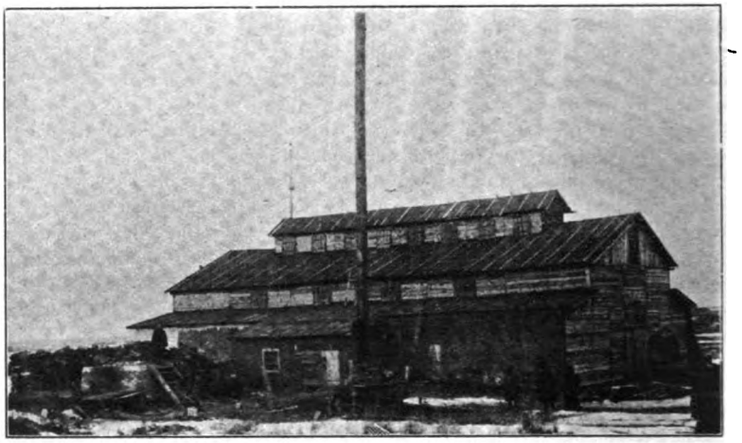
HARBIN: THE JEWISH SYNAGOGUE



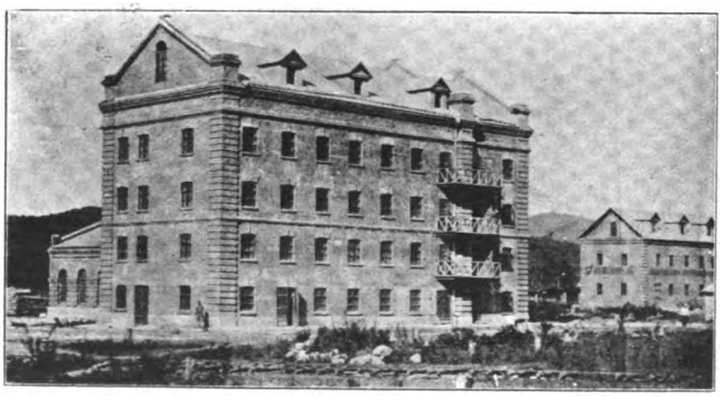
HARBIN: ONE OF THE BREWERIES

here and go over to Harbin, there is the treaty port. If you remain here you will have to pay our taxes and conform to our trade regulation. If the foreigner paid the Chinese tax, he recognized Fu-tu-tien as native territory, and the taotai made strenuous efforts to have the foreign firm mentioned submit to the tax as a precedent. But the foreign firm could not see any advantage in paying a tax, when their Japanese competitors did not, and so give them the trade advantage. Japan is playing both ends to win her own point. Through diplomatic channels, she recognizes Russia's claim to exclusive jurisdiction which of course makes Fu-tu-tien the treaty port, and, in accordance with treaties, refuses to allow her merchants to pay the lekin tax on goods. If this point is conceded, she can apply the same rule to the large cities along the South Manchuria Railway, when a repetition of diplomatic squabbles will follow. The Railway Company's pretensions to regulate the affairs of Harbin have been strenuously opposed by the American Consul, Mr. Fisher, and by the British and German Consuls at Mukden. There is not a single American merchant in the Harbin district, and only one or two British firms, who would be affected by the stand of the Railway Company, so the opposition on the part of the American Consul was so decided that the scheme was not carried out at the time. Yuan Shih-kai, while head of the Waiwapu, had also firmly refused to recognize Russia's claims in this direction, and his dismissal in January removed a formidable obstacle to the prosecution of the railway's policy. About the same America and Great Britain has been made as a matter of principle and fair play. The Railway Company, however, despite this firm diplomatic stand, has steadily persisted in its attitude, and last year planned to create a municipality which would be presided over by the Chief of the Railway Staff. The opposition to this on

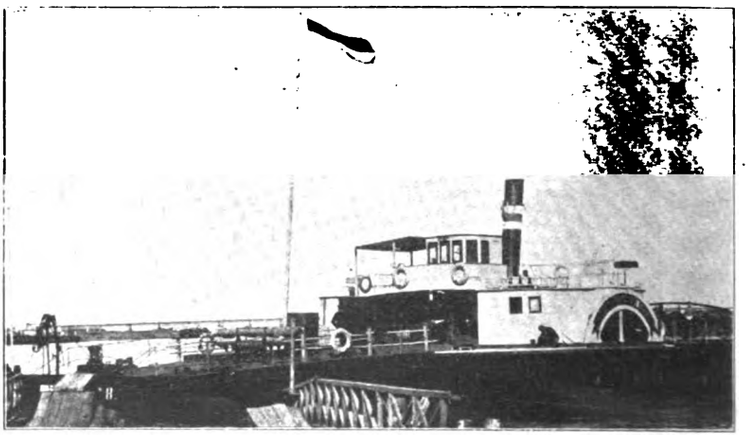
HARBIN: ONE OF THE BREWERIES



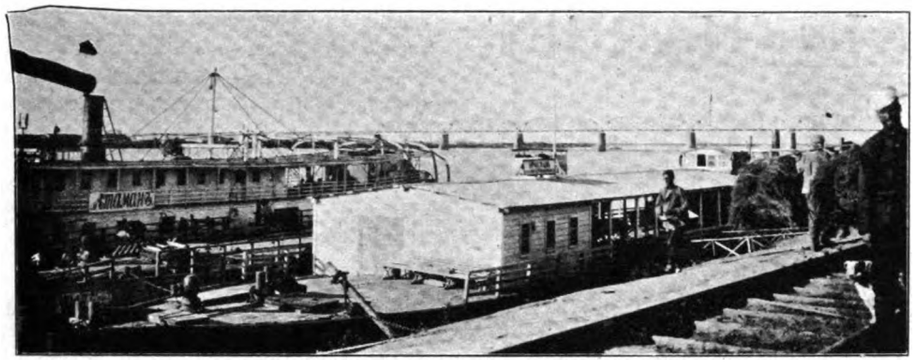
GLASS WORKS NEAR HARBIN



THE FLOUR MILL AT IMENPO, ON THE LINE OF THE C. E. RAILWAY



HARBIN: RIVER STEAMER

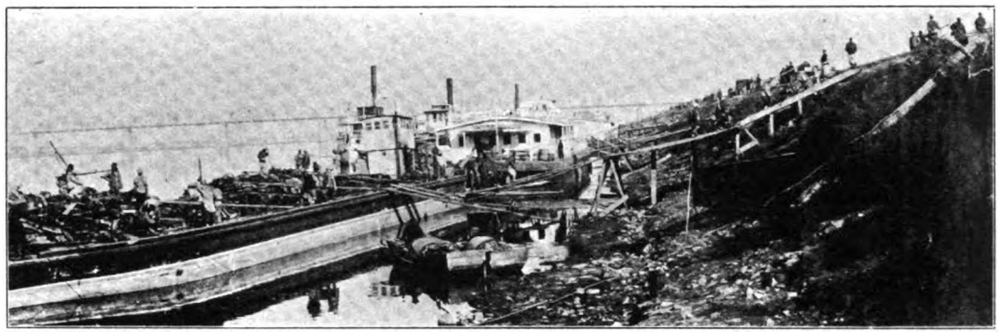


HARBIN: THE SUNGARI RIVER FRONT

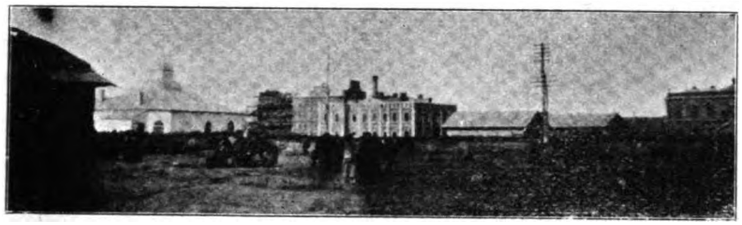
heart of the Northern Provinces. The Railway zone at Harbin itself covers an area of nearly 50 square miles, and the company has the right of acquiring about 150,000 more acres along the entire line, while the zone to the south, under control of the South Manchuria Railway, is nearly 40,000 acres, covered by the same terms.

The Railway Company has already assumed an aggressive attitude by driving out all Chinese merchants in the railway towns who refuse to recognize their authority or pay the taxes. The attitude on both sides to the dispute is uncompromising. Russia and China seem indisposed to give in on any point, while Japan naturally is an interested observer, throwing the weight of her influence with the former.

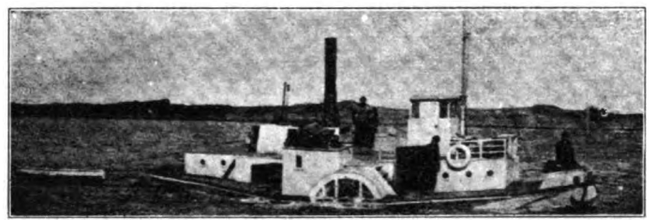
time, Mr. Consul Fisher was ordered to Newchwang, on account of his health, and almost immediately Major General Hovarth put his pet plans into operation and created a Russian Municipal Council, consisting of members of his staff, with himself as Mayor. A code of obligatory regulations were then drafted and placed in force, which provided for taxation in various schedules, and also the obnoxious domiciliary obligations on residents as exists in Russia. This Municipal Organization failed to receive the recognition of other nationalities, with the sole exception of the Japanese. The Chinese have protested again ,vigorously and the American educated Taotai of Harbin, Shih Shao Che (Alfred Tze), a Cornell graduate,



HARBIN: HANDLING FREIGHT ON THE RIVER FRONT



HARBIN: THE MANCHURIA FLOUR MILLS

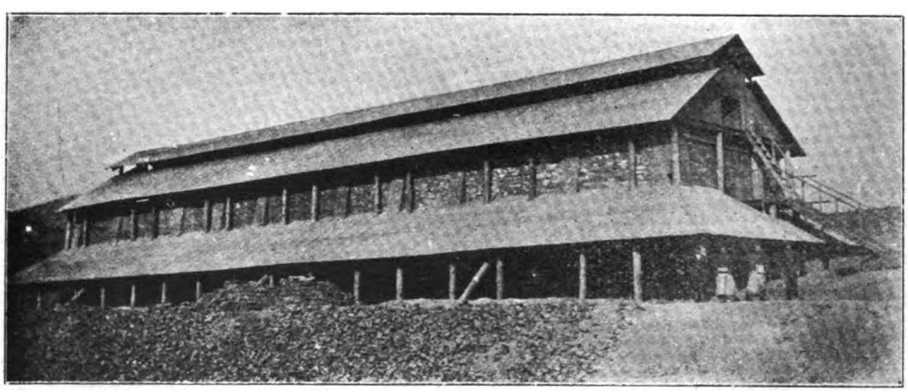


HARBIN: TYPE OF RIVER STEAMER

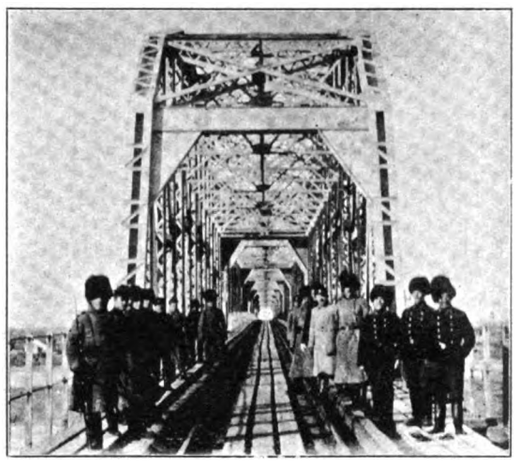
was ordered to Peking to place the matter in full before his Government. Gen. Hovarth was also called to Peking by his minister, and the question is now receiving the attention of both governments in the effort to arrive at a satisfactory settlement.

The crux of the situation lies in the interpretation of the original agreement between China and the Russo Chinese Bank. The official text of the document was in French, and Article 6 reads, "The Company will have the absolute and exclusive right of administration in its territory or lands." The Chinese version or translation omits this important sentence. It is unofficially claimed by the Chinese that their translation is the correct one, but the original document in Chinese was lost or stolen during the occupation of Peking by the Allied Forces. In Rockhill's Treaties the translation from the Chinese text fails to include the above lines from Article 6 of the French version.

The grave importance of the issue to China lies in the fact that large areas can be thus brought under foreign control and jurisdiction in the



BRICK WORKS NEAR HARBIN



C. E. RAILWAY BRIDGE OVER THE SUNGARI AT HARBIN

If Russia refuses to recede from her position, the question eventually arises, What then? China is too weak to forcibly assert her idea of right, and Russia's actions are justified by the original French text of the agreement. If this document is the true one, other powers can not interfere, as Russia's action is in accordance with the rights surrendered by China, and does not therefore conflict with the Open Door Policy.

FLOUR MILLING IN HARBIN

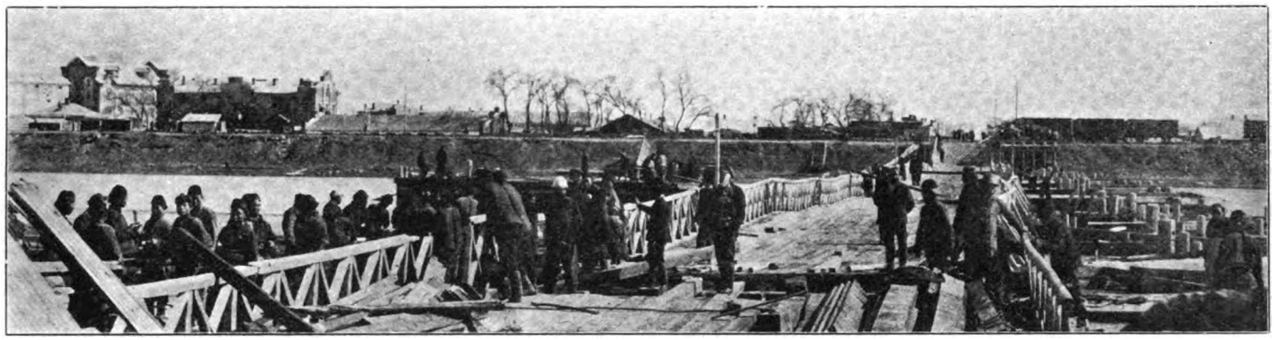
(From Our Own Correspondent)

As outlined in the article on the "Rise and Fall of Harbin" appearing in this issue, the flour milling industry of that city and adjacent towns promised at one time to permanently lead all other manufacturing enterprises. The rapid development in Harbin alone earned for the city the permanent appellation of the "Minneapolis of the Far East."

Ten mills were in operation in 1904 producing 4,600 barrels or nearly 1,000,000 pounds a day. These mills were operated day and night and were taxed to the utmost capacity, earning enormous profits while the war lasted. They paid from 30 to 35 cents gold a bushel for the wheat delivered at the mills, and the producing steam flour mills and a number operated by water power. The production of these mills alone averaged 450,000 barrels per annum. A list of the flour mills of Northern Manchuria under Russian control follows:

*FLOURING MILLS IN NORTHERN MANCHURIA, ON LINE OF THE CHINESE EASTERN RAILWAY

1 Sungari Flouring Mills,
No. 1, Harbin.....1800 bbls. per day



HARBIN: PONTOON BRIDGE OVER THE SUNGARI BRANCH: SUNGARI FLOUR MILLS TO LEFT.

The first mill was started in 1901 producing 150 barrels a day, the second in 1902 with a capacity of 600 barrels, and a third, shortly afterwards. These were the only mills in operation previous to the war, and their profits were so great with the increased demand arising from the influx of the military, others were established as rapidly as the machinery could

area was capable of unlimited expansion to meet the demand.

Several more mills were projected and erected later making a total of 16 mills in Harbin or its vicinity. Most of them were constructed of brick and stone and equipped with the best Austrian and American machinery. In addition to the mills in Harbin, one was erected

2 Sungari Flouring Mills,
No. 2, Harbin..... 800 " "
3 Kovalsky Flouring Mills,
Harbin.....1200 " "
4 Zuzulinsky Flouring
Mills, Harbin.....1000 " "
5 Southern Flouring Mills,

CHINESE EASTERN R.R.—THIELING STATION.

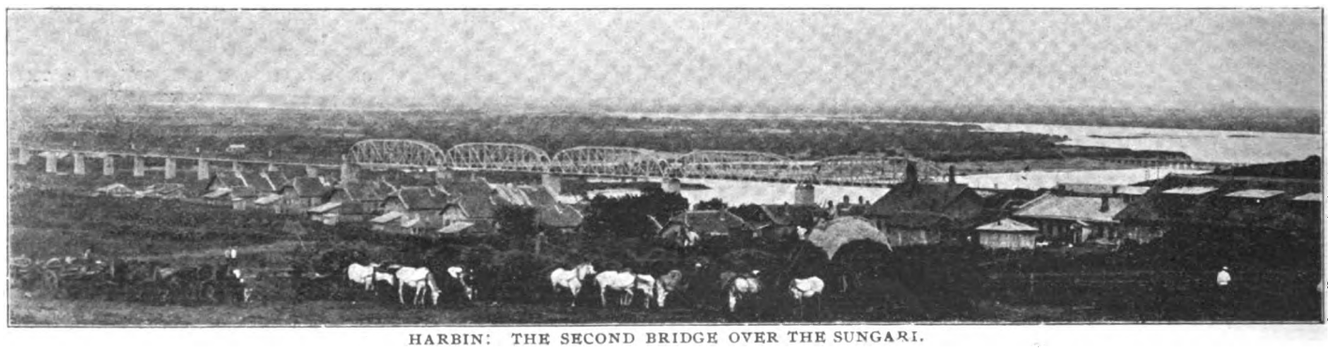
KWANGTCHULIN STATION BETWEEN HARBIN AND KWANGCHINGTZE.

be transported and installed. In the early part of 1903, six mills were working with a daily capacity of 1440 barrels, all equipped with European machinery, with one exception, and that a small concern with American machinery. Then licenses were granted for two more large mills, and by October, 1903, there were eight mills with a daily capacity of 3,800 barrels, erected at a cost of over $650,000 gold.

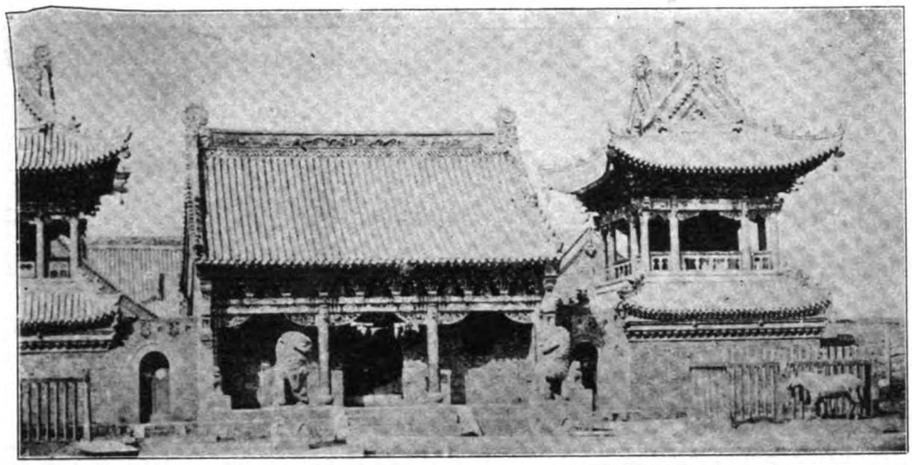
at Kwangchengtse of 150 barrels capacity, one at Kirin with equal capacity, and another of the same size at Port Arthur. Along the line of the Chinese Eastern Railway at convenient points others followed, for instance, at Hailar, Swanchengpu, Iunampo, Asheho, Fuliardhe, Tsitsihar, while a number were located in the Ussuri District. In South Ussuri, near the Pacific Coast, there were erected twelve

Swanchengpu..... 750 " "
6 Miyakoff Flouring Mills,
Hailing..... 750 " "
7 First Manchurian Flour
Mill'g Co., Harbin..... 750 " "

* Total Harbin mill capacity 6,000,000 bushels wheat per year. 50 to 65 kopecks a pood (36 lbs.)



HARBIN: THE SECOND BRIDGE OVER THE SUNGARI.



TSITSIHAR: THE YAMEN OF THE GOVERNOR OF HEILUNGKIANG PROVINCE

8	Russian Flour Mill'g Co., Harbin	900	bbls.	per day
9	Eastern Flouring Mills, (Drizen), Harbin	400	"	"
10	Blagovechensk Flour'g Mills Co., Harbin	550	"	"
11	Riff Flouring Mills Co., Harbin	400	"	"
12	The Groat Production Co., Harbin	200	"	"
13	Rostovskoe Flouring Mills Co., Harbin	150	"	"
14	The Borodin Flouring Mills, Old Harbin	550	"	"
15	The Tihomiroff Flouring Mills, Inuanpo	900	"	"
16	The Erushinolsky Flouring Mills, Asheho	200	"	"
17	The Ya-Sun-Dao Flouring Mills, Hailin	200	"	"
18	The Kuliaeff Flouring Co., Fuliardhe	220	"	"
19	The Chinese Flouring Mills, Tsitsihar	200	"	"
20	Swanchengpu Flouring Co., Swanchengpu	250	"	"
21	Ki-Feng-Tai Flouring Mills, Kwanchengtse	200	"	"
22	Melnikoff Flouring Mills, Kwanchengtse	250	"	"
23	Samsonovitch Flouring Mills, Harbin	200	"	"
24	Tetukoff's Flouring Mills, Harbin			
25	Skidelsky Flouring Mills, Harbin (formerly the Riff Flouring Mills, Co.)			

With the cessation of hostilities and the withdrawal of the troops came the inevitable crash and depression. Half the mills suspended operations and, gradually, others were forced to close down, leaving only three mills at work during the latter part of 1908. Conditions went from bad to worse for there had been no serious attempt to cultivate a new market. The Chinese, while fond of the flour, consume a vast amount of cheap, coarse, inferior stuff the chief attraction of which is its very low cost. Scattered over Manchuria are hundreds of small native mills where the most primitive methods are employed, and while the daily output is small, the aggregate is large and materially affects the marketing of the machine-made product.

To complicate the development of a market for the Russian mills, the appreciation of silver and the temporary increased purchasing power of the natives, due to the war, permitted the profitalbe importation of American flour. The imported article did not, however, come in competition with Russian mills up north, as it was consumed in the neighborhood of Mukden and Tiehling and never reached the territory north of Changchun. The first importation of American flour into Manchuria occurred in 1899, and in up to 1904 there was an annual average quantity imported of 70,000 to 80,000 bags. In 1905 and 1906 these importations rose to a total of 2,500,000 bags. Since the latter end of 1907, however, the demand steadily declined, owing to the depreciation of silver and the competition of the native mills. The American flour was both superior in quality and higher in price and at Mukden it was sold for $1.35 gold a bag, while the native product brought .90 cents gold for the same quantity.

In addition to the South Manchurian market being lost to the Russians through American competition and the small native mills, the Japanese loomed up as a formidable trade opponent in establishing their own mills. The Manchurian Flouring Mill Company was organized and a plant having a capacity of 1,600 bags a day was erected at Tiehling. This mill is working successfully and its product can be found in all the stores in Mukden. The company also proposes the erection of three more mills, one at Liaoyang, one at Antung, and another at Newchwang.

All of these conditions contributed to injure the expansion of Harbin's industry. As a way out of the difficulty a flour trust was proposed and organized by the Russian millers to control production and price. The railway was included in the scheme so as to participate with capital and to grant favored rates for land and water transportation, as well as by concessions of land in the railway zone. The details of the trust measured the ambition of its promoters. The local grain market was to be controlled and the organizers entertained hopes of an immense export trade and of the conquest of foreign markets. The proposed capitalization was 4,000,000 roubles of which the millers would furnish 1,000,000 and the railway the balance. The estimated output was 80,000 pounds of flour a day. The representative of the company also petitioned the Minister of Finance for a subsidy, emphasizing the necessity of such assistance to foster the growth of Russian political influence in the East. The alluring suggestion apparently failed, for we later find the Sungari and four other mills incorporated into one company. It appears that the mills were able to float a large loan from the Russo-Chinese Bank on the security of their plants and properties, and on this basis some have been able to continue operations.

And thus the end has come to the Russian dreams of a great Oriental Moscow. Subsidies, bounties, favored rates, banking protection, and other governmental and private facilities have been tried and have failed. At first the world looked on and wondered, viewing the marvelous growth and development with alarm. With millions of cheap and effective laborers, unlimited expanse of good wheat country, plentiful supply of fuel and exceptional rail and steamer facilities to the ports of the Pacific, all contributed to make Northern Manchuria a serious menace to other wheat growing and exporting sections of the globe.

HIS EXCELLENCY CHOU SHU-MU, GOVERNOR OF HEILUNGKIANG PROVINCE (TSITSIHAR)

TSITSIHAR: THE CAPITAL OF HEILUNGKIANG PROVINCE. MAIN STREET

The cost price of wheat, delivered at the mills, never exceeded 50 cents gold a bushel and varied generally between 30 and 40 cents. The wheat produced about 75% of flour. The prices received ranged from $2.50 gold a hundred pounds for the best grades to $1.00 gold per 100 pounds for the very lowest, while bran brought .25 cents a pound. The mills had the advantage of low railway freights and the $4.00 per ton rate from Harbin to the seagoing steamers at the mouth of the Amur was exceptionally favorable. The profits varied from 15 cents to 45 cents gold a hundred pounds of grain milled. But the stimulus of the army has gone, and it would appear that Russian business ability cannot cope with the many obstacles to developing a legitimate trade.

Harbin, today, presents the appearance of a town in decay. No smoke arises from the many stacks and there is an air of listlessness and abandon, in place of the former feverish excitement.

The future of this city is difficult to anticipate. Under normal political conditions, with the good will of the people and a continuation of the paternal solicitude of the Russian government, there is hope of regaining some of the lost ground. The closing of Vladivostok as a free port will protect Siberian mills from outside competition, but unless some energetic and systematic effort is made to cultivate the native Chinese trade, the future of the industry is hopeless. It would prove a herculean task to rehabilitate this industry and put it in a flourishing condition. Russia's opportunity in Manchuria has been irretrievably lost. Where, at the outset, her liberal, extravagant policy in many matters with the natives, won their good will, now the reverse obtains. Russia's political tactics in Harbin and the railway zone have won for them the cordial hate of the native and the open opposition of the Chinese government. While organized boycott has not been inaugurated, there is a tacit understanding among the Chinese traders to purchase from Russia only when absolutely necessary, and among the farmers the tendency is to combine and force higher prices for their wheat. All the combined efforts of the government, railway, bank, and the mills cannot overcome the passive resistance of the Chinese.

The Chinese authorities are making strenuous efforts to colonize the northern provinces and bring the waste lands under cultivation especially in Heilung Kiang province. Nearly 600,000 acres have recently been planted in cereals. It is estimated that the total production of Northern Manchuria is nearly 200,000,000 bushels of various cereals, about half of which is consumed locally. The balance is largely purchased by the Russians for their own consumption across the border in the Trans-Amur district. The low productiveness of the Amur regions, insufficient to meet local demands, causes the government to turn to Northern Manchuria to meet the deficiency. Russia may encourage the Harbin mills to extend the sale of their products in this direction, but if present conditions in regard to the Chinese cannot be ameliorated, the final crash is inevitable.

G. B. R.

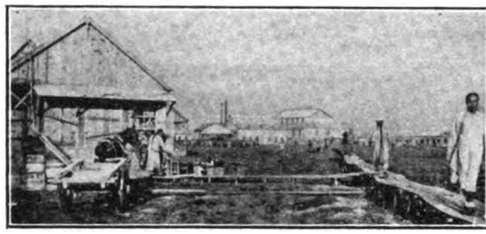
RUSSI'AS MINING INDUSTRY IN THE FAR EAST

St. Petersburg.—The question whether we shall protect our Far Eastern territory—of so great an importance for us—from the usurpation of our warlike neighbors depends neither on the number of troops we maintain there nor upon the speedy building of the Amur Railroad, nor, in fact, upon any other military or strategical measures, but upon our ability to duly organize the colonization of this territory, and to develop its industries, chiefly the mining industry. The richness and diversity of minerals in Russia's Eastern provinces are undoubted, but nobody is working at them. Attempts have only been made to mine gold and coal, which, should the work be well organized, ought to give brilliant results. Along the

* *Mining Journal's* correspondent at St. Petersburg.

HARBIN: COMMERCIAL CLUB

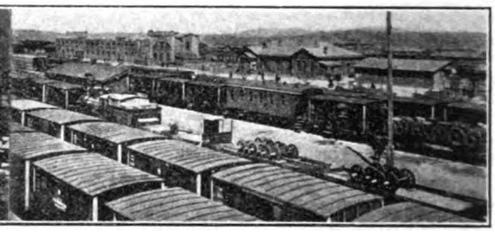
COMMERCIAL SCHOOLS AT HARBIN



HARBIN: FLOUR MILLS

VIEW OF MANCHURIAN FLOUR MILLS

CHANDECHEZ, A STATION ON C. E. RY. BETWEEN HARBIN AND MANCHURIA

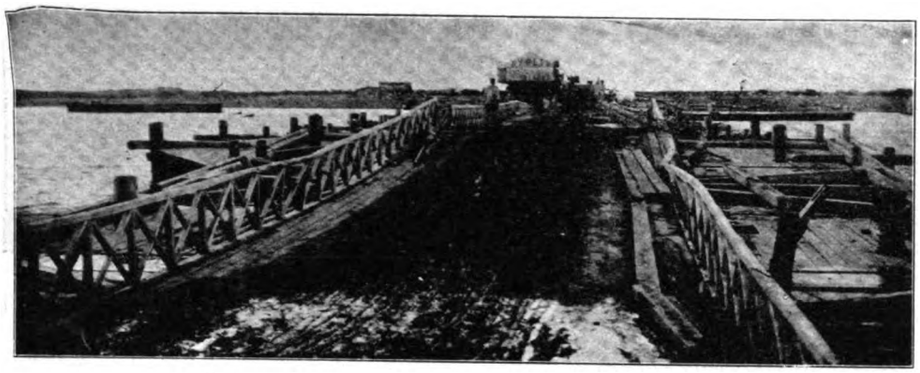


C. E. RY. STATION AND YARDS AT MANCHURIA

HARBIN: HEADQUARTERS OF GENERAL STAFF FOR TRANS-AMUR DISTRICT

C. E. RY. STATION AT IMJANPO. HAS LARGE BREWERY

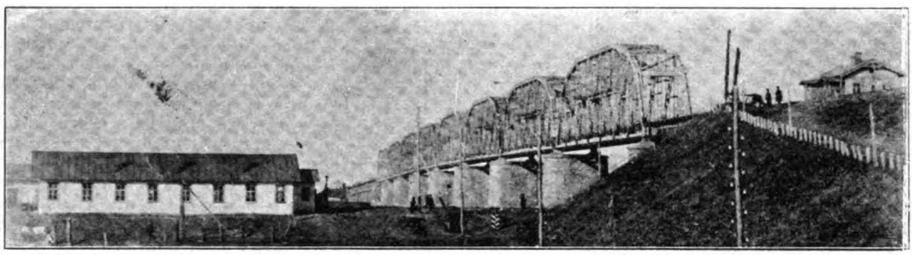
A TYPICAL STATION ON THE C. E. RAILWAY



PONTOON BRIDGE OVER THE SUNGARI BRANCH AT HARBIN

whole extent of our Pacific coast there is not a single metallurgical factory or a well-organized mining enterprise. Some of the existing enterprises—for instance, Makovsky, on the Sakhalin—are liquidating business; others, instead of mining the best imaginable coal, bury gold in the ground, without any hope of ever extracting it. The chief reasons for such mining stagnation are: limiting laws regarding the mining industry, absence of capital, and lack of knowledge and energy. In vast territories along the Pacific and Okotsk coasts the mining industry was prohibited by the Government, owing to the special "importance of the localities in a

A STATION ON THE C. E. RAILWAY



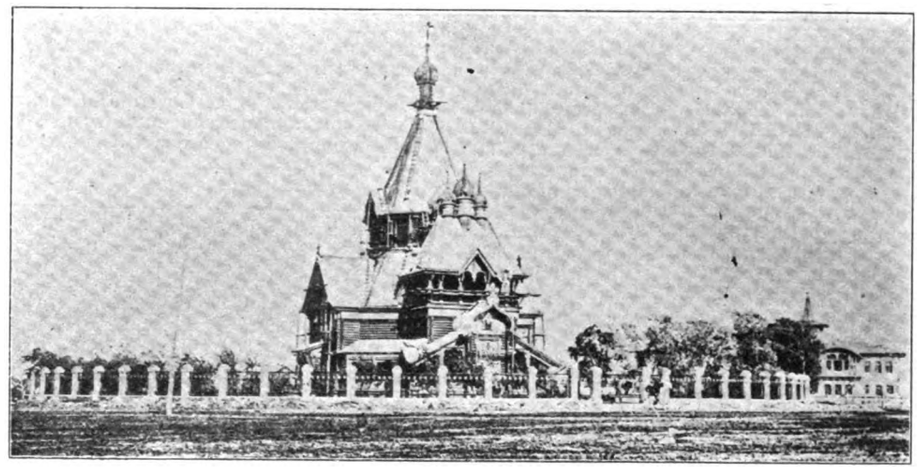
HARBIN: THE RAILWAY BRIDGE OVER THE SUNGARI

military strategical respect. Only recently the Okhotsk coast was opened for mining, and now the Government contemplates doing the same for the so-called 100-verst strip of the Pacific coast. Russian capitalists do not venture to undertake anything in the Far East, in view of the remoteness of the country, economical and political uncertainty, and constant threats from the side of Japan. Some of the operators would be willing to undertake any industrial business, iron or coal, but require guarantee and loans from the Government, wishing to mortgage them materials, coal, and rails, which they will supply to the Government. Others require the Government to pay them, in advance, half of the price of the whole order given, and after receiving such an advance they are ready to invite foreign capitalists to participate in the enterprise. It is most interesting to note that the Government has sometimes complied with such requests, and loaned big sums to non-existing works, and certainly the results for the Government were most deplorable. It is difficult to hope at present that Russian capital will be invested in the Far Eastern industry. Owing to its internal loans the Government withdraws Russian capital from industrial enterprises, and the exorbitant interest (6 to 7 per cent.) paid on such loans induces such capital already invested in industrial enterprises to be transformed into Government interest-bearing paper. The revival of industry in the Far East is at present possible only with the help of foreign capital, and the Government ought to give all possible encouragement to foreigners who would honestly and seriously take this matter in hand. I am sorry to state that the reactionary Press—whose opinion the Government considers—at every new foreign enterprise undertaken in Russia, begins to raise its voice, lamenting the "sale of Russia to foreigners," arousing political and economical difficulties.

The Government and the State Duma have decided to retain our Far East territory at any cost, which is quite comprehensible, because the Amur and the adjacent Primorsky region are Russia's future colonization and industrial reserve. Moreover, the Far East can hope for a great development of the mining industry, because in the vicinity there exist quite ready and secure markets—in the first place, Japan, where oil is wanted as fuel for their torpedo fleet, and China, with the new requirements of its 500,000,000 population. The Chinese and German merchants have already come to understand what profitable business might be done with the latter, and are already soliciting from the Russian Government concessions for oil extraction in Sakhalin. Besides oil, the Far East is rich in coal; and, at the same time, the Amur region consumes enormous quantities of foreign coal—viz., Japanese, British, Westphalian, and even Australian, paying over 4,000,000 roubles, chiefly to the Japanese.

As to other imports to the Far East, we may mention that, according to data of the Custom Dues Department, 4,000,000 poods of iron (in 1903, before the war, 1,000,000 poods, and in 1906, 2,000,000 poods) have been imported during the period of from 1901 to 1906. Calculating the price of iron at Rs. 2.50 per pood, it is evident that Russia has paid to foreigners, during the last six years, over 10,000,000 roubles for the very same product, heaps of which are wasted along the shores of the bay of St. Olga.

Lack of yards and works in Vladivostok obliges the Government to send ships in separate parts, spending millions of roubles for transport. The



THE CHURCH IN THE ADMINISTRATION CITY, HARBIN

Amur Railroad will require 10,000,000 poods of rails; calculating 1 rouble per pood, this will amount to 10,000,000 roubles. If Russia would only work its own iron mines along the shores of the St. Olga bay it need not spend a single rouble on foreign iron, and the Amur Railroad would be built of home material.

The gold industry is also awaiting a great future: with the adoption of cheap modes of working gold mines, dredges, and excavators, the yield of this metal, now reaching 600 poods per year, will grow to an enormous extent. Moreover, new enterprises begin to be created in the north-east of Russia—viz., on the Tchukotsk peninsula and the Okhotsk shore.

HARBIN.—ACCOUNTING DIVISION OF THE C. E. RY.—BUILT FOR RAILWAY CLUB HOUSE.

HARBIN.—RESIDENCE OF ENGINEER.

THE HON. LAO-KE (ALFRED SZE)
CUSTOMS TAOTAI, HARBIN—A. B. 1901; A. M., 1902, CORNELL.

Foreign capital, knowledge, and energy will find here a vast field of development. Let us hope that the British-Russian friendship will induce not speculative persons, but serious capitalists to invest their money in Russian enterprises, and I am sure that they will find it worth while, and that their trouble and investments will bring them a good profit.

On January 1, 1909, the term for duty-free entry of machinery for the Ural and Siberian gold mining industry expires. This attracts general attention, and, as I have already written you, it was generally expected that the above term would be prolonged. But at present the Minister of Trade & Industry objects to it, giving as reason that, the amount of such machinery being very limited, the expense of gold miners will not amount to any considerable figure, whereas the duty-free entry of above machinery is in contradiction with the general protection system of our Government, and gives cause to other branches of industry to ask for similar exemptions. Therefore it is likely that a duty will be fixed on the above machinery. A deputation of gold miners hope to have an interview with the Minister on the subject.

PROPOSED PHILIPPINE REVENUE CUTTERS

The Bureau of Customs of the Philippine Islands contemplates the acquisition in the near future of two vessels suitable for use as revenue cutters in the Philippine Islands Customs Service. These vessels are intended for patroling and scouting along the coasts and through the tortuous and, in some places, shallow waters of the Philippine Archipelago for the purpose of preventing smuggling from neighboring islands. The principal points to be considered in designing them will therefore be light draft, low free board, stability, quick action, and speed. As the vessels will be especially designed for this class of service and will not be required to carry cargo other than its own stores, and as cabin accommodations will be provided for the necessary customs officials only, the expense that would otherwise be involved in fitting them for passengers and cargo may be devoted to increased efficiency.

The proposed act of the Legislature authorizing their purchase specifies that they shall be of steel, not less than 140 feet in length over all with proportionate draft and beam suitable to the requirements, fully equipped and furnished, ready for service, capable of not less than sixteen knots mean speed; each armed with one rapid fire one-pounder gun and two machine guns, provided with suitable search lights, electric, distilling, and cold storage plants, and furnished, in addition to the usual life boats, with one fast deck launch, propelled by steam or gasoline, not less than 32 feet in length, and capable of developing 22 knots per hour.

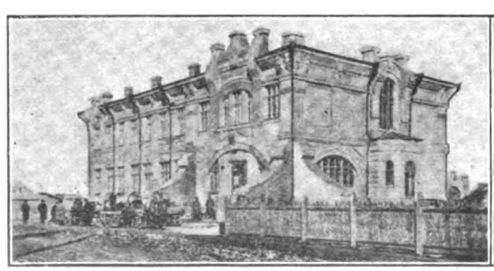
Prior to deciding where the vessels shall be constructed the Bureau of Customs has expressed a desire to receive from reliable ship builders plans and specifications of vessels that will meet its requirements as well as the terms at which they would be willing to enter into a contract to furnish them.

*THE LAW CONCERNING JAPAN'S SUBSIDIES TO DISTANT NAVIGATION

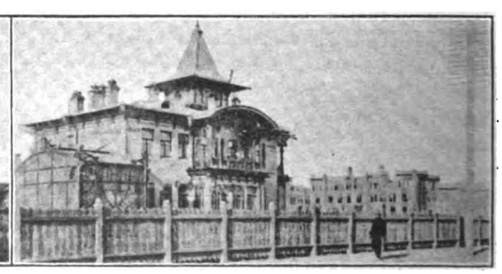
The particulars of the law relating to distant Navigation as introduced into the present session of the Diet are as follows:—

1. *The Contract for Subsidies.* The Minister in charge may grant subsidies to those subjects of the Empire or those companies composed of Japanese subjects alone, for a period not

* Japan Financial and Economic Monthly.



HARBIN.—HOME OF MILITARY GOVERNOR.



HARBIN.—TAOTAI'S YAMEN IN PRISTAN.

FUSHUN COAL MINES

Location of Fushun Colliery.—Deviating from the Main Line of the South Manchuria Railway at Su-chia-tun Junction, 267 miles from Dairen, runs a branch line for Fushun 34 miles in distance and almost parallel to the River Hun. The terminal station is Fushun, and the next one this side the terminus is Chien-chin-chai which is the station for the famous Fushun Colliery.

Particulars of Fushun Steam Coal. Quality of Fushun Coal.—Fushun coal was, as most

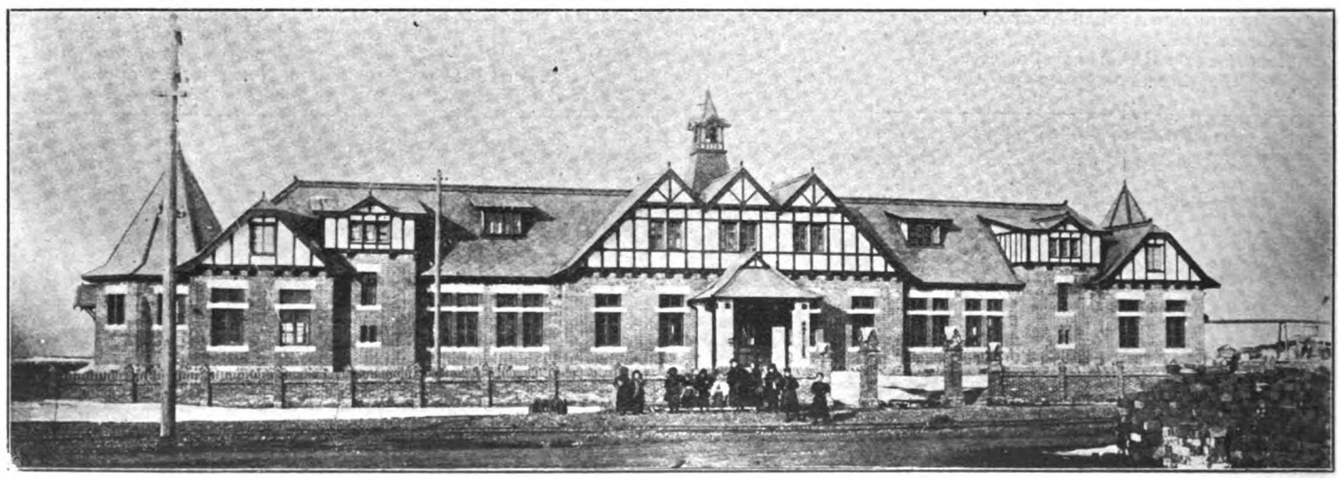
FUSHUN COAL MINES OF THE SOUTH MANCHURIA RAILWAY CO.: PANORAMIC VIEW OF THE MINES AT CHIEN-CHIN-CHAI, NO. I.

The coal field covers a distance of ten miles from west to east taking a parallel direction with the River. The width of the workable deposits measures at least a mile, and the thickness of the seam which dips in towards the north at the average grade of about 30 ranges between 120 and 175 feet. The most conservative estimate of coal in the belt is placed at eight hundred million tons. The present daily output is about 1,700 tons; but preparations are in rapid progress to increase it up to 6,000 tons in the near future.

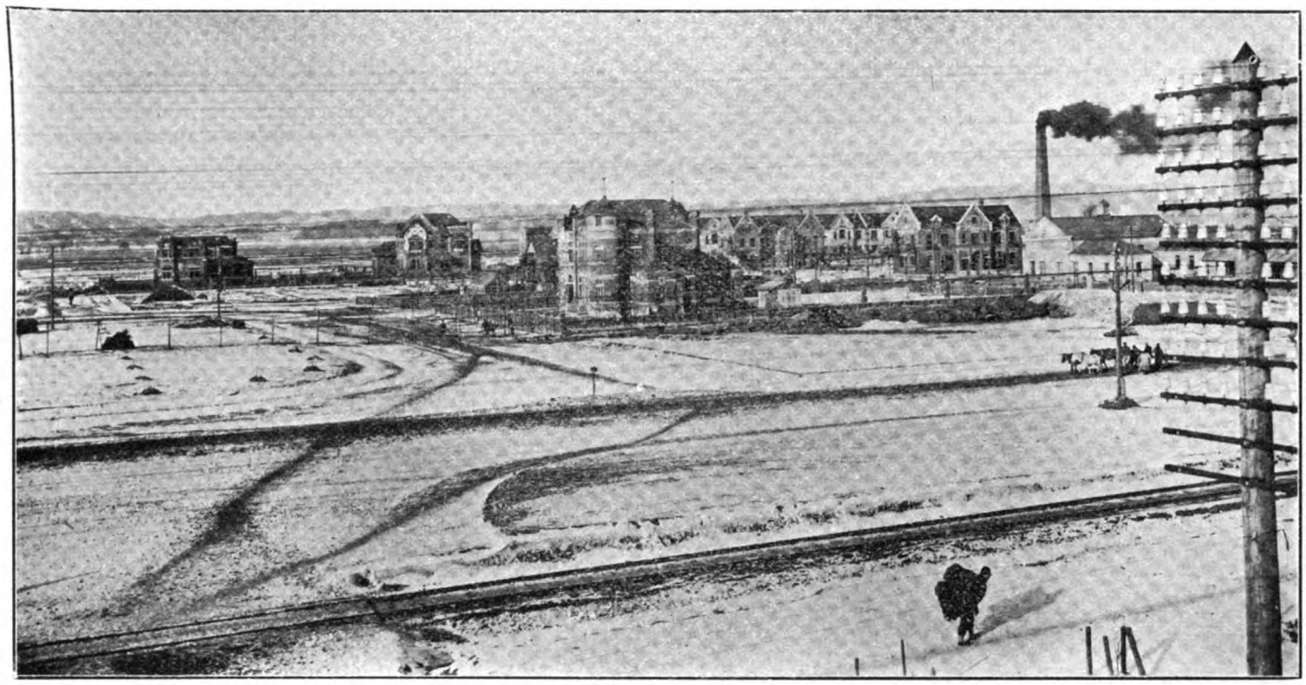
of Japanese coals, formed in the Tertiary period, and is of good uniform quality. It is of a lustrous black color. It is a bituminous coal rich in volatile matter, with a heating power of seven thousand five hundred (7,500) calories. Ash and clinkers are very scarce, and sulphur and other objectionable matters are almost non-existent.

Use of Fushun Coal.—As fuel for locomotive and marine engines, Fushun coal can compete with the best Japanese coal. Because of the large percentage of volatile matter which it contains, Fushun coal is more suited for gas making than any other coal that can be found in the East. It is also suitable for general industrial uses, for brick and lime kilns, smithies, household uses, etc.

Fushun coal does not stick to the grate when it burns, so that even an inexperienced fireman can make a fire with it very easily. It catches fire as soon as it is put into the furnace



FUSHUN COAL MINES: ELEMENTARY SCHOOL HOUSE AT CHIEN-CHIN-CHAI



FUSHUN COAL MINES OF THE SOUTH MANCHURIA RAILWAY CO.: PANORAMIC VIEW OF THE MINES AT CHIEN-CHIN-CHAI, NO. 2.

facilitating an easy cleaning of fire with little loss of steam pressure. Fushun coal gives out very little smoke.

Fushun coal takes fire so very quickly that heat is diffused rapidly and at once, therefore the draft must be carefully arranged. What little ash there is falls easily through the grate, and care must be exercised that the fire proper is not shaken down with the ashes. When this coal is piled up in heaps higher than ten feet it is advisable to provide ventilation.

Reports on Trials of Fushun Coal.—Fushun coal was used on board the steamer *Kaijo Maru* of the Osaka Shosen Kaisha, from July 2, 1908, to August 6, 1908, for three consecutive voyages from Moji to Dairen and return, the results of which, compared with Tagawa coal, one of the best Japan coals, are as follows:

To make the trial as fair as possible the engines were put in as nearly a similar condition as possible for each kind of coal, but it may be noted that the fact that the pipes were cleaner when the Fushun coal was used than they were when Tagawa coal was used may have had some effect to the disadvantage of the latter.

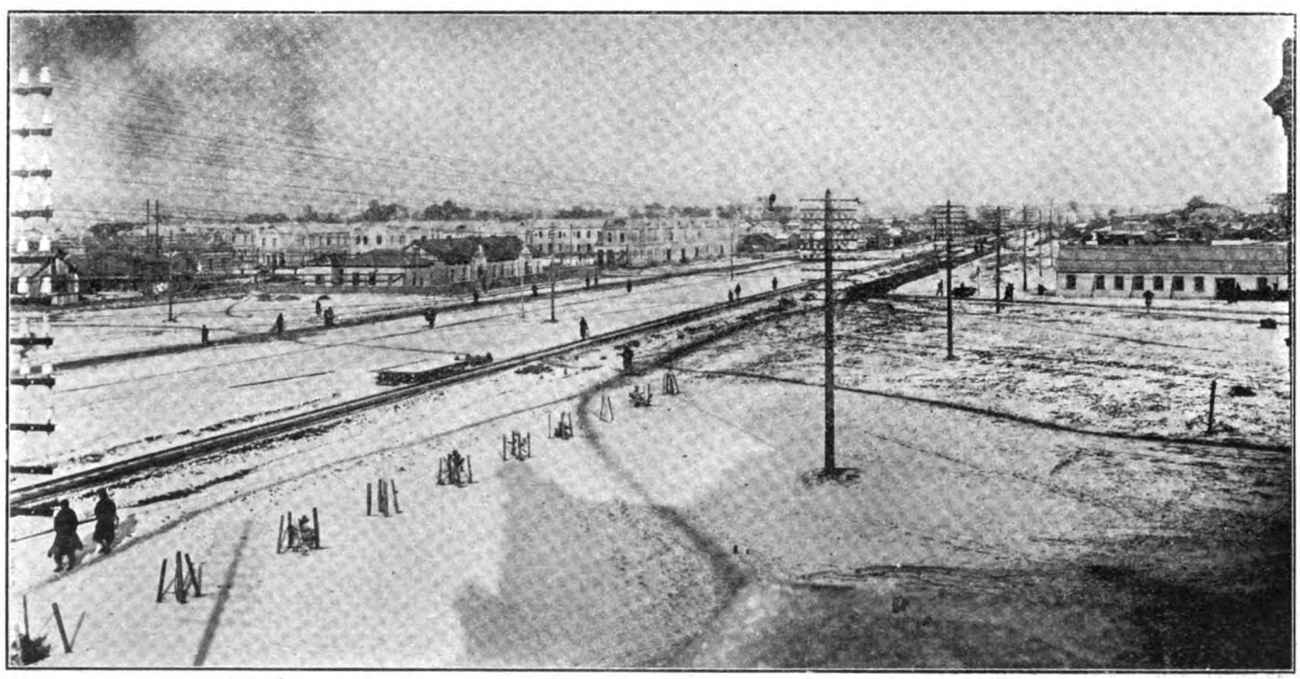
		July-August, 1908.		
Date		2 to 4	7 to 9	16 to 18
Coal		Tagawa	Fushun	Tagawa
Pressure		118 lbs.	181 lbs.	181 lbs.
Expansion		6.2	6.0	6.0
Revolution		81	81	80
Consumption in 24 hours		37.2 tons	34.8 tons	38.4 tons
Ash		16%	12%	18%
Draft	Fore	10′ 10″	9′ 11″	12′ 11″
	Aft	15′ 01″	14′ 00″	15′ 00″

Date		21 to 23	30 to 1	4 to 6
Coal		Fushun	Tagawa	Fushun.
Pressure		181 lbs.	181 lbs.	181 lbs.
Expansion		6.0	6.0	6.0
Revolution		80	80	80
Consumption in 24 hours		36.4 tons	37.9 tons	36 tons
Ash		13%	17%	13%
Draft	Fore	10′ 7″	12′	9′ 7″
		14′ 9″	15′ 2″	14′ 10″

From this table it is clear that Fushun coal has given better results all round than Tagawa coal.

The characteristics of Fushun coal are as follows:

Fushun coal is of a dark brown color and weighs one ton to 42 cubic feet, somewhat lighter in weight than Tagawa coal. When it burns there occurs an escape of gas making a crackling



FUSHUN COAL MINES OF THE SOUTH MANCHURIA RAILWAY CO.: PANORAMIC VIEW OF THE MINES AT CHIEN-CHIN-CHAI, NO. 3.

noise and giving off a liberal quantity of volatile matter. It burns very readily, and soon becomes spongy, but it is very fragile so that the clinkers do not stick to the grates. The flame is longer and the coal burns more quickly than ordinary Japan coal. It leaves very little ash and clinker.

The results of the trial of Fushun coal made on the *Fujisan Maru* of the Mitsui Bussan Kaisha on a voyage from Newchwang to Moji on May 24, 1908, were as follows:

Weather: Fair. Head breezes; calm sea.

Draft: 17 ft. 2 in. at bow; 17 ft. 5 in. at stern.

Speed: Of engine, 10.9 knots; of ship, 9.5 knots.

Pressure: 175 lbs.

Revolutions per minute: 60.

Horse-power: 985.

Consumption per 24 hours: 24 tons.

Consumption per horse-power per hour: 2.2 lbs.

Space per ton: 42.4 cubic feet.

Ash: 12%.

Kind of coal: Fushun unscreened coal.

leveling of the fire with the fire-rake and without any effort at airing. As the coal does not cake, the fire can be moved from one boiler to another very easily, thus facilitating a change of boilers, with little loss of pressure. As it burns so readily, what little loss of pressure there is can be speedily regained, and we believe Fushun coal is very superior in this respect. As the smoke is very thin (combustion on the grate being almost complete) this coal is most suitable for steamships. It has very little sulphur, so that there is not much deterioration to the boiler-plate resulting from its use.

A trial of Fushun coal made on the *Amakusa Maru* of the Osaka Shosen Kaisha during a voyage through the Yellow Sea on July 19, 1908, resulted as follows:

Weather: Sea was rather calm; head breezes.

Steam Pressure: 165 lbs.

Revolutions: 75.8.

Net horse-power: 1,894.44.

Speed in water: 12 knots.

Speed of engines: 13.5 knots.

Consumption per horse-power per hour: 2,335 lbs.

Consumption per square foot of grate area per hour: 34.5 lbs.

Consumption per 24 hours: 47.306 tons.

Ash: 8.1%.

Fushun coal is of fine quality, very black, with a good lustre. It burns with a slight crackling noise and shows a little caking.

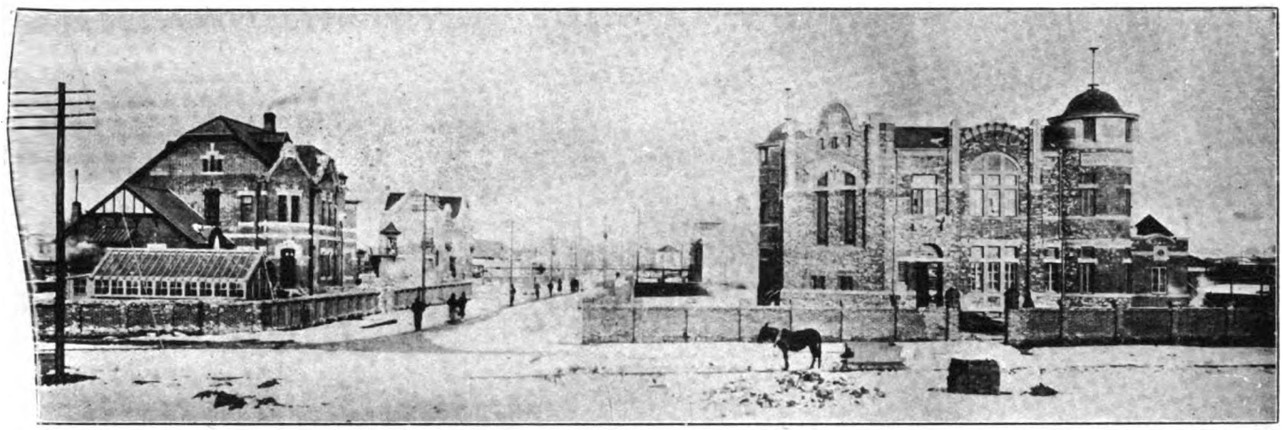
It catches rapidly and in heating power is not inferior to Moji coal (the Japanese standard variety). The small quantity of smoke given off proves how complete is the combustion. The clinkers are few, allowing the use of the same grate for six consecutive hours, whereas Tagawa coal can only be burned for four hours continuously without change of grates.

The results of a trial made at the brick factory of the Company were as follows:

Fuel: Unscreened coal. :

Quantity consumed: 3 tons per 10,000 pieces.

No. of kilns: 24 compartments.

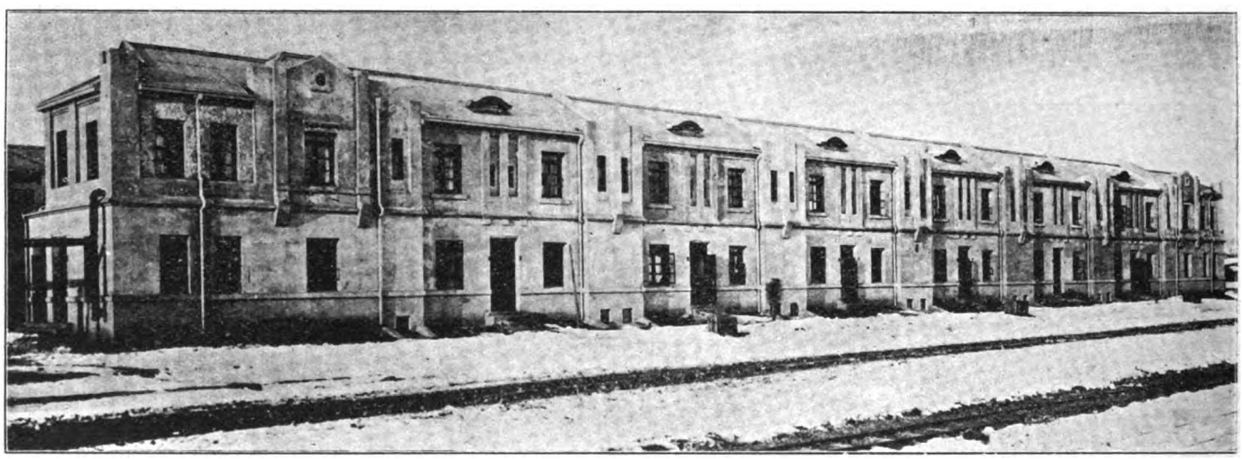


FUSHUN COAL MINES: OFFICIAL'S QUARTERS AT CHIEN-CHIN-CHAI

Kind of kiln: Continuous flat kiln.

The continuous flat kiln is an improved form on the Hoffman system, twelve compartments comprising one set, the fire passing around the compartments and baking the bricks. In the trial 3,400 bricks were baked in a little more than 20 hours.

We find that on account of the longer flame of the Fushun coal and the greater diffusion of its heat, it is very easy to send the heat from one kiln to another. The kilns are still new



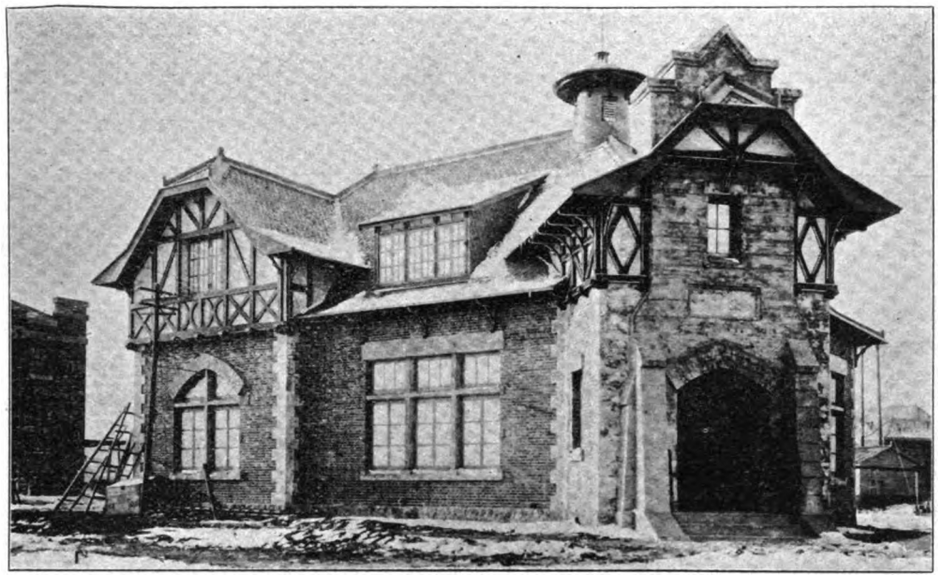
FUSHUN COAL MINES: WORKMEN'S QUARTERS AT CHIEN-CHIN-CHAI

The coal is of good quality, not too hard, black in color and with a strong lustre. When taken into the fire the coal burns up immediately with a slight crackling noise. Its heating power is very great, there are few clinkers, which do not stick to the grate. It is a kind of coal which an inexperienced fireman could easily manage. As the coal is of good quality and burns easily, the fire can be kept up with fewer hands than can ordinary coal. The pressure may be maintained only by the frequent

(only two or three months have passed since they were completed) and although three tons of coal were used for making every ten thousand bricks it is expected that the quantity of coal can be much reduced in the future.

The following is the result of an analysis of Fushun coal made at the laboratory of the Natural History Museum, Hamburg, on Feb. 4, 1908.

"Certificate applied for by Dr. Prof. Gottschhe.



FUSHUN COAL MINES: POST OFFICE AT CHIEN-CHIN CHAI

FUSHUN COAL.

	Percentage.	Percentage when water and ash have been extracted.
Carbonic acid	72.58	78.75
Hydrogen	5.37	5.83
Sulphur	0.69	0.75
Nitrogen	1.31	1.42
Oxygen	12.22	13.25
Water	6.48	0.00
Ash	1.35	0.00

The ash consists of salicic acid, oxidized iron and clay. There are traces of lime, magnesia and maganese."

Analyses made at the Miike Coal Mine, the Naval Briquette Factory, the Edamitsu Steel Works and the Fukuoka Mine Superintendent's Office.

MAY, 1905.—MIIKE COAL MINE. ANALYSIS OF FUSHUN UNSCREENED COAL.

Water	6.7067%
Volatile Matter	36.2133%
Fixed Carbon	51.1400%
Ash	5.9400%
Color of Ash	Light brown.
Sulphur	1.2298%
Specific Gravity	13.130%
Calories of Heat	7260.

SEPTEMBER, 1906.—NAVAL BRIQUETTE FACTORY, TOKUYAMA.

	Sample A.	Sample B.	Sample C.	Sample D.
Volatile Matter	56.51	43.67	48.40	44.36
Solid Carbon	40.93	54.08	49.52	53.76
Ash	2.56	2.25	2.08	1.88
Character of Coke	raw	raw	raw	raw
Sulphur	0.64	0.88	0.60	0.65

REMARKS:—Little ash remains. Mixed with anthracite coal it would be suitable for making briquettes.

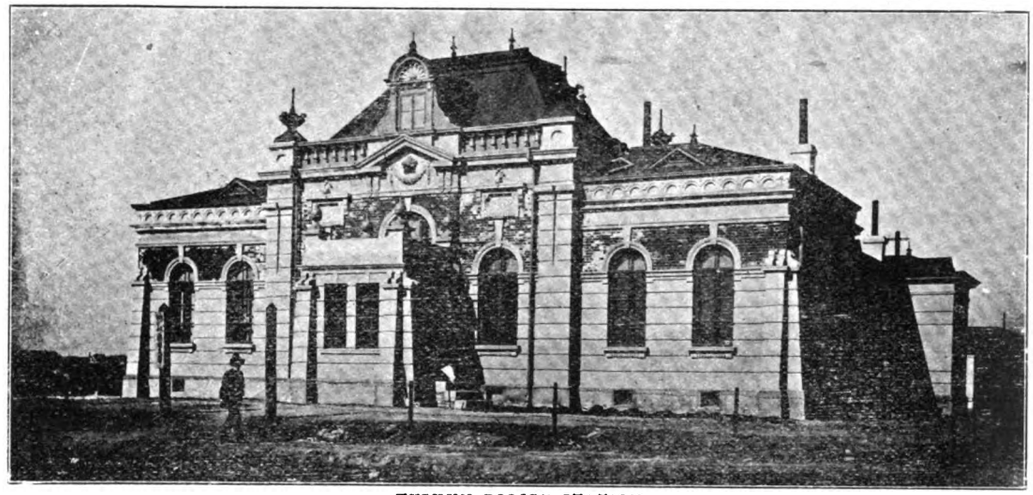
1907.—IMPERIAL STEEL WORKS, EDAMITSU.

	Sample A	*Sample B*
Water	4.61	6.53
Volatile Matter	54.78	49.44
Coke	38.26	42.36
Ash	2.35	1.69
Phosphorus in ash	0.34	0.206
Sulphur	0.728	0.769

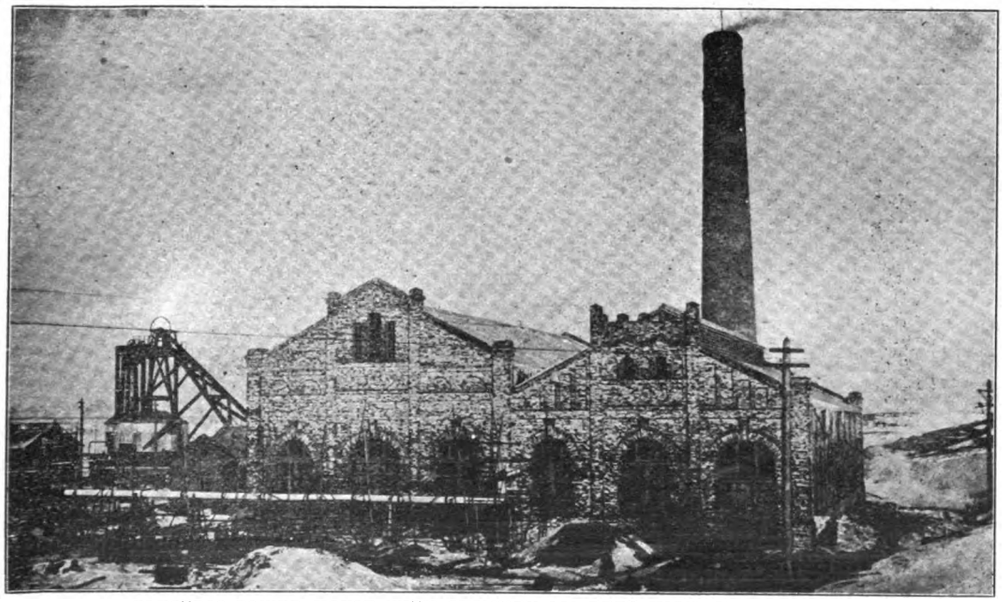
"Kabari" means "hard part of the seam."

SEPT. 1907.—FUKUOKA MINE SUPERINTENDENT'S OFFICE

	FUJI "kabari"	YAMATO "kabari"	ASAHI "kabari"	SAKURA "kabari"
Water	6.640	8.725	4.555	6.295
Volatile Matter	33.210	26.975	41.215	33.815
Solid Carbon	60.150	64.300	54.230	59.890
Ash	4.920	2.340	2.990	2.070
Color of Ash	brown	light gray	light brown	light yellow
Sulphur	0.740	0.480	0.640	0.430
Phosphorus	0.180	0.350	0.470	0.120
Specific Gravity	1.280	1.270	1.220	1.270
Calories of Heat	7.040	7.510	7.480	7.480



FUSHUN POLICE STATION



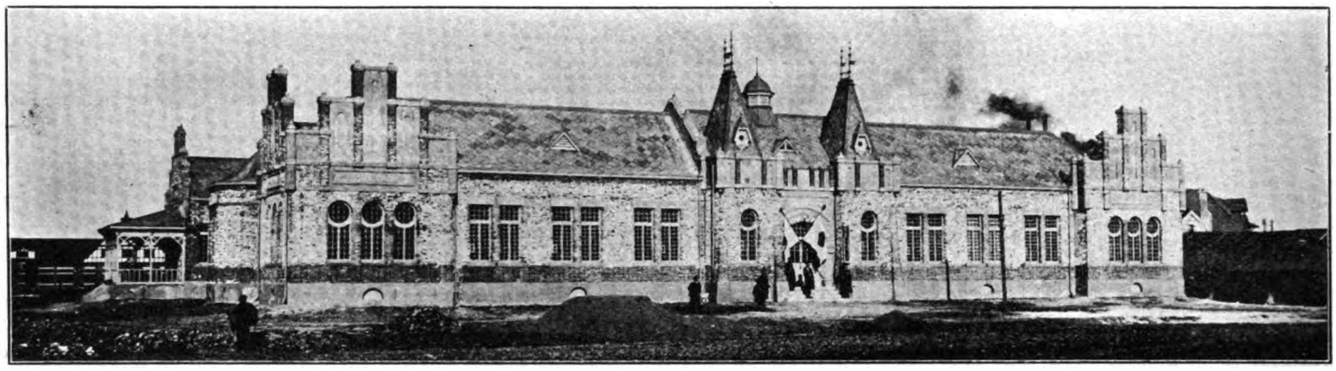
ELECTRIC POWER HOUSE WITH CHIMNEY 150 FEET HIGH, CHIEN-CHIN-CHAI

FUSHUN COAL STATISTICS FOR 1908.

Months.	*Quantities mined.*	*Quantities sold.*	*Quantities consumed by Comp.*
January	23,374	6,919	12,110
February	17,635	7,082	18,247
March	27,082	13,674	24,093
April	27,802	5,748	21,033
May	31,425	7,623	19,512
June	33,504	10,079	30,402
July	37,048	10,107	36,807
August	34,476	8,847	20,829
September	40,274	14,486	23,429
October	42,806	5,739	18,792
November	44,094	20,075	17,003
December	52,627	19,070	17,221
	437,084	132,482	259,388

The Mining Department of the South Manchuria Railway Co. announces that orders will be filled anywhere along the South Manchuria Railway lines on 2 days' notice at the farthest and that special facilities are provided on the Dairen Wharves for the prompt supply of bunker coal to the vessels whenever required.

Of the building work carried out at Fushun just before the winter may be counted the completion of the General Office for the Colliery besides the official's and workmen's quarters. Equipments for electric light and steam heat were almost perfected. An extensive reservoir



FUSHUN COAL MINES: COLLIERY HOSPITAL AT CHIEN-CHIN-CHAI

can now draw from the River Hun 3 miles away a constant supply of water as good as found anywhere else. The building of a gas-work will be started this year as soon as the machinery and other materials arrive. Other sundry improvements are in project for the Colliery Town. Again, for the benefit of visitors, a plan has been drawn up for a comfortable European hotel, which is expected to be ready by the end of the year, the ground having been already levelled. Further, before the year closes, a new railway station will be built at a more convenient site than the present temporary one.

As to the mining proper, we are now raising about 1,700 tons a day. The mines that are being worked at present are of a temporary nature and are in future to be superseded by the two pits, named Oyama and Togo, which were planned out with every up-to-date equipment and which, when completed, will be capable of putting out 5,000 tons in all per day.

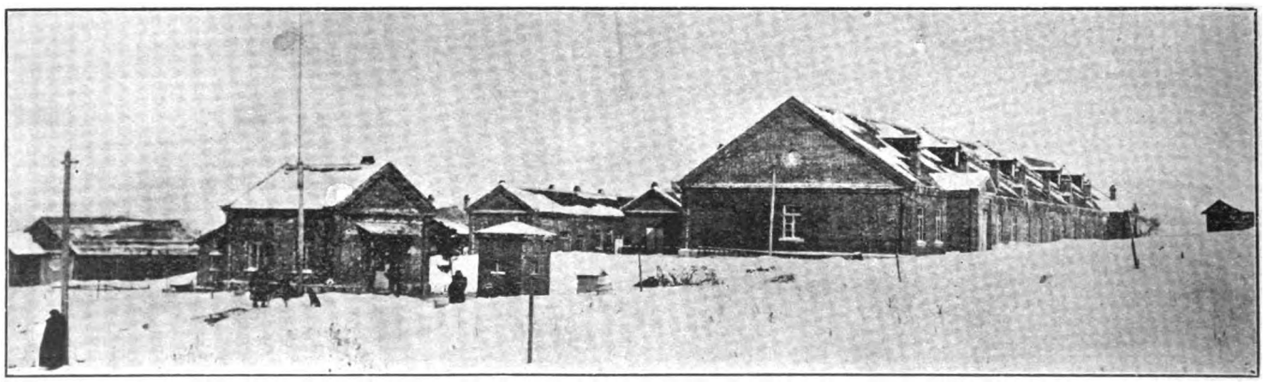
Each pit is to consist of two shafts, 1,100 feet deep, and the sinking operation is progressing as favorably as could be desired.

FUSHUN COLLIERY: RESERVOIR WITH VALVE CHAMBER. IT DRAWS SUPPLY FROM THE HUN RIVER THREE MILES NORTH-EAST

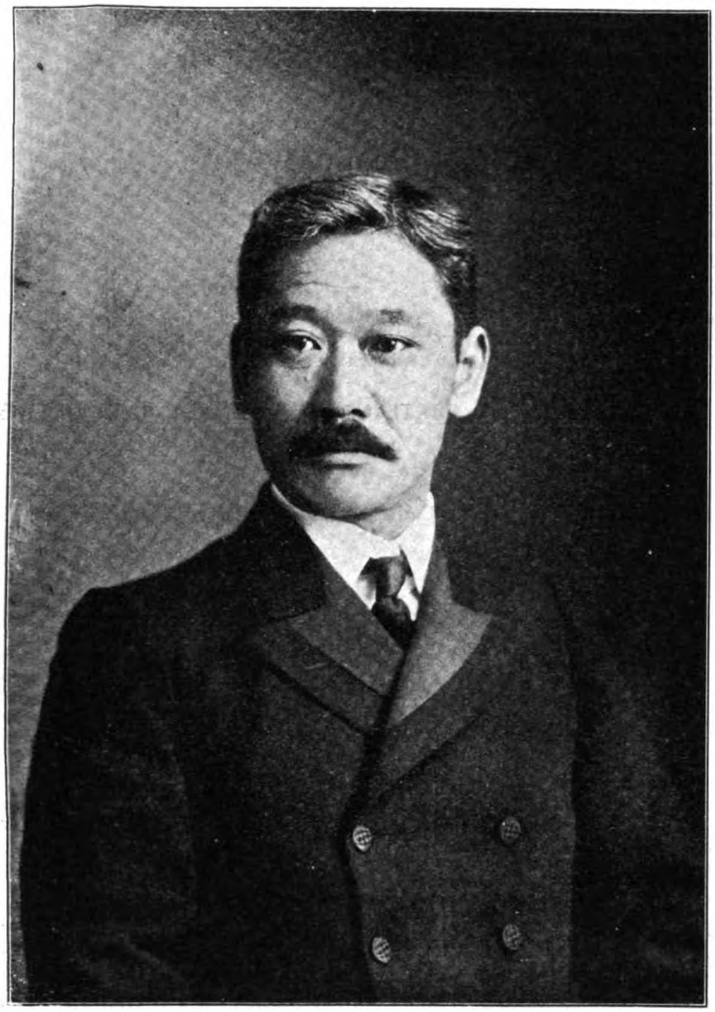
COALITE*

Few industrial departures of recent years have aroused more interest, both in economical and scientific circles, than the invention of Coalite—a fuel designed at once to remove the smoke nuisance and to annihilate waste by preventing the escape into the atmosphere of smoke and soot—the baneful results of incomplete combustion. During the eighteen months which have elapsed since the original announcement of the discovery was made the position of the enterprise has, we are informed, been progressively strengthened, and the manufacturers have been quietly and busily at work defining the large economies in labor, time, and fuel associated with its production. There has been little stir in the industrial world during this period of preparation, and people who are apt to forget that "Rome was not built in a day," and are ignorant of the fact that the time required for the establishing of new undertakings is in direct proportion to their magnitude, are

* Mining Journal.



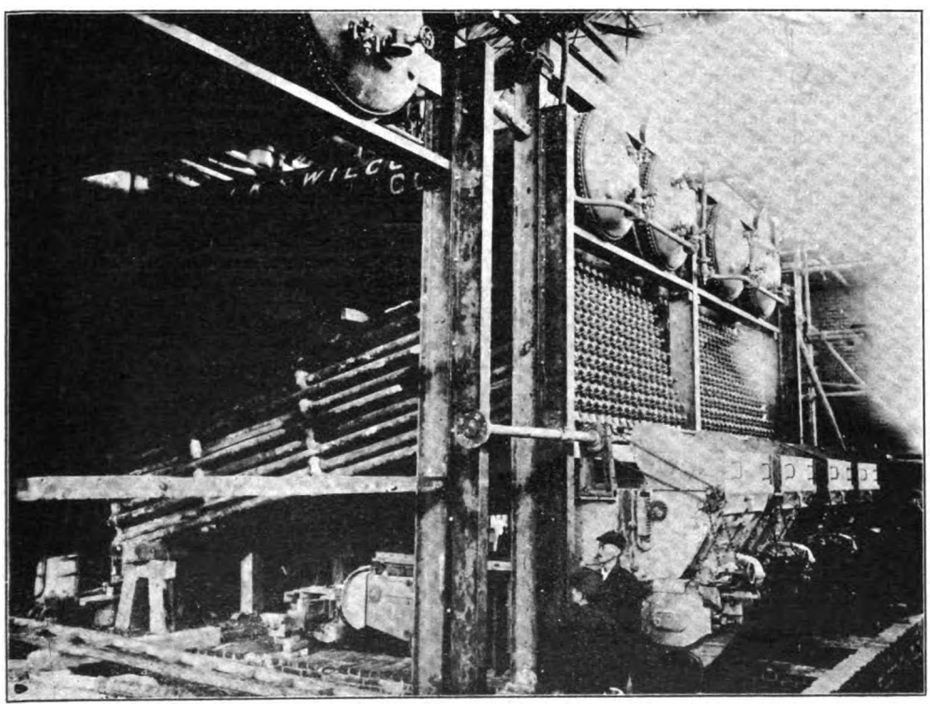
FUSHUN COAL MINES: BARRACKS FOR LOCAL GARRISON OF THE RAILWAY GUARDS, WITH GUARD HOUSE IN FOREGROUND, AT CHIE-CHIN-CHANI, FEB., 1908



DR. B. MATSUDA, M. I. M. E.
CHIEF ENGINEER, FUSHUN COLLIERY

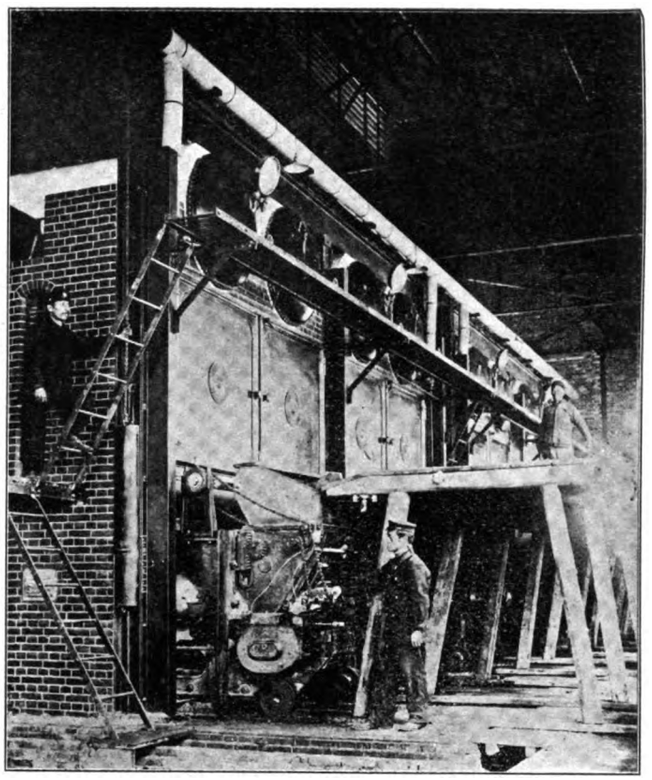
asking why, in view of its manifold advantages, Coalite is not yet in possession of the fuel market.

The fact is that the Coalite enterprise has grown considerably beyond its original limits during its brief career. Sanguine as its influential sponsors were on the eve of its initiation, time and reflection were required in order to determine the full extent of its possibilities.



FUSHUN COAL MINES: INSTALLING BABCOCK AND WILCOX WATER TUBE BOILERS FOR THE ELECTRIC POWER HOUSE AT CHIEN-CHIN-CHAI, (OCT., 1908)

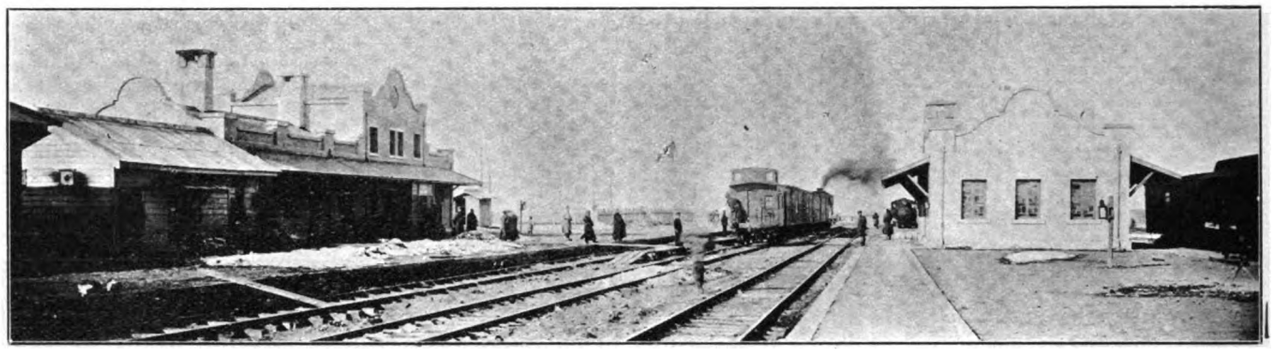
In following up the original discovery, fresh discoveries of a most important character have been made, leading to additional economies, and a method of producing coalite at once cheaper, more consistent, and more fruitful. The time occupied in development of this character is time well spent. To capture the markets of Britain with a new fuel is a stupendous proposal, the ultimate success of which will depend upon adequate measures of preparation. A false start—the creation of a general demand



COAL HANDLING MACHINERY AT THE FUSHUN MINES

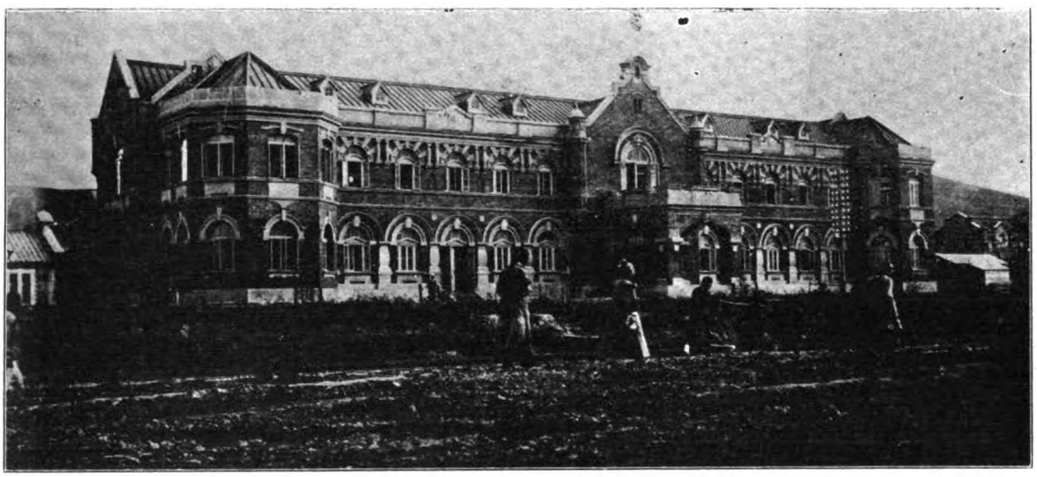
for Coalite as a result of the recognition of its advantages at a time when the sufficient scale of its manufacture was not assured—in other words, to call into existence a demand outstripping the dimensions of the supply—would spell disaster, or at least a ruinous delay. It is to the assurance of this supply to meet the anticipated demand that the efforts of the directors have hitherto been successfully directed.

The manufacture of Coalite necessitates a form of plant entirely different from that in use in connexion with any other known coal-distilling process. Letters Patent have been granted for the invention not only in the United Kingdom, but in Germany, the United States of America, and all the principal foreign countries and British Colonies throughout the world. Coalite is produced at a relatively gentle temperature in a retort, or still, composed of a group of tall iron tubes, each 6 ins. in diameter, fixed closely together in one block, thus effecting considerable economies of space. These retorts when in use are placed in a vertical position, in contradistinction to the horizontal stills of the gas manufacturer; and the heavy doors, or lids, by which charging is effected are opened and closed mechanically. At Wednesfield, where a unit plant of twenty-four retorts—in all 24 by 12 tubes—can be seen in operation, a daily product of 300,000 cubic feet of gas, and of about 40 tons of coalite is effected in an area of 40 ft. by 20 ft. Owing to the low degree of heat, which is the essence of the process, the strain thrown upon the plant is reduced to a minimum, and thus at the outset of the manufacture space and "wear and tear" represent an enormous saving. The economy in labor is also great, it being estimated that in the work of supervising the retorts eleven men can replace the thirty employed in the treatment of an equivalent amount of material in the work of gas production. The novelty of the process, necessitating a novelty in the



FUSHUN COAL MINES: SUCHIATUN JUNCTION STATION, WHERE THE RAILWAY BRANCHES FROM THE MAIN LINE TO THE MINES

apparatus, has rendered it inexpedient to rely upon the ordinary sources of supply in the matter of plant, and the foundry at Wednesfield is capable of turning out two plants per week, while the company is now engaged upon the construction of a second foundry of equal dimensions. In addition, the Barking works, which will be the centre of the London supply, have already begun operations, and since a large and valuable area of land has been secured there is every facility for a very rapid extension of the works by installing additional units as turned out by the foundry at Wednesfield. A river frontage of about a mile ensures magnificent



GENERAL OFFICE OF THE FUSHUN COLLIERY, CHIEN-CHIN-CHAI

wharfage accommodation, which will simplify on the one hand the disembarkation of supplies of coal from the north, and on the other the distribution by river carriage of the finished product. The supply of Coalite is thus assured, and when it commences to supplant the common fuel its progress will be uninterrupted by any hitch in the smooth operation of supply and demand.

The essential difference which marks out Coalite from other forms of coal distillation is a question of degree in the temperature at which it is produced. Hitherto the object of subjecting coal to treatment by heat has been the manufacture of gas, and since, within certain limits, the greater the temperature the larger the quantity of gas, heat has been forced up to a point which throws a great strain upon the plant at the same time that it seriously diminishes the value of the by-products. Nearly a quarter of a century ago the great chemist Armstrong propounded the fundamental question whether "the gasmaker is right in his present method of heating coal. Would it not be better to deal with it so as to produce a larger proportion of residuals and a different class of coke?" This question has been answered by the Coalite manufacturers emphatically in the affirmative. They say that their method of production is more economical and therefore superior; that it produces a gas of a much higher candle-power and greater calorific equivalent, a fuel that is derfect as regards its burning and heating power and blameless as regards smoke, and tar of so immensely superior a quality that it is quite a different substance—different in its specific gravity and in the valuable oils which are produced from it by processes mainly physical in character. As a commercial article the last-mentioned product is a veritable gold mine. No more fascinating chapter exists in the scientific record than the seeming necromancy by which the chemist has converted this black and turbid liquid into a variety of valuable materials, indispensable to civilized life, and the process by which Coalite is made turns out this by-product in a greater profusion and of a finer quality than any which result (accidentally) from the manufacture of gas.

This brief sketch of an undertaking which has aroused widespread interest and seems now to be at the commencement of its practical career will serve to remind the investing public of its leading features. At the annual meeting, which will shortly be held, it is expected that an interesting statement will be made as to the present position of the undertaking.

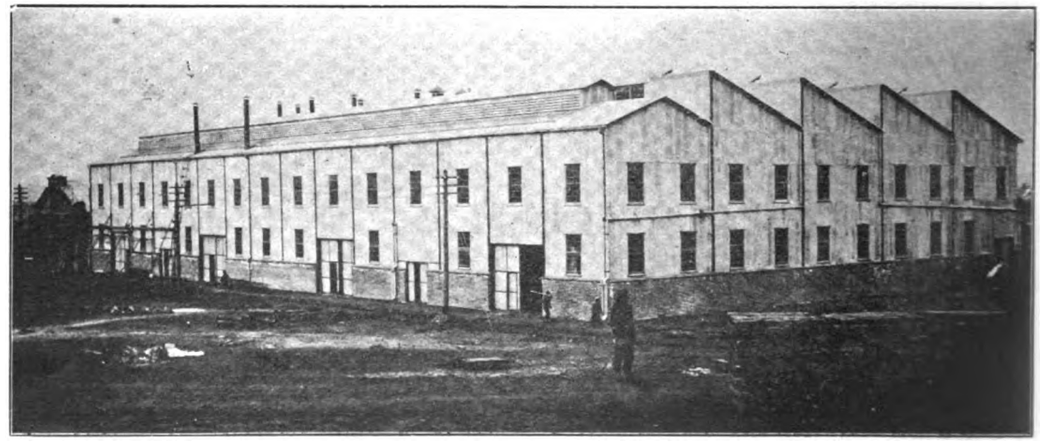
PORTLAND CEMENT FOR USE IN THE TROPICS

By Richard K. Meade*

Under the title "Portland Cement Testing," there appeared in "The Philippine Journal of Science," of June, 1908, a paper by W. C. Reibling and L. I. Salinger, of the Chemical Laboratory of the Bureau of Science, Manila, P. I. This paper was abstracted very fully in *Engineering News* of December 3, 1908, p. 612, under the heading, "The Testing of Portland Cement for Use in the Tropics." The conclusions drawn by the authors of this paper are that Portland cement to be used in the tropics, and more particularly in the Philippine Islands, should have a markedly different composition from that used elsewhere.

It seems to the writer unfortunate that this paper should have been so widely circulated or should have come from a government source. The danger of publications issued under the approval of the government is that they will be extensively used by one manufacturer to injure the trade of another and to foster his own interest. In this particular instance we believe that there will be a number of points in the paper on "Portland Cement Testing" which will be very promptly seized upon by the unscrupulous manufacturer to damage the trade of a worthy competitor. The individual government employee at all times has the right to express his opinion, but when he does so over his official position with the government, his utterances assume judicial importance without, as is the case with legal decisions, being subjected to a possible final reversion by a higher court, if found to be in error. That much of the investigating now done by the government is of the highest type of research work and likely to lead to practical results no one will dispute but, at the same time, bulletins and other publications should be carefully reviewed by competent boards or submitted to acknowledged authorities before being allowed to appear as government documents or to be published as "contributed from" government laboratories.

*Chemist, Dexter Portland Cement Co., Nazareth, Pa. in the *Engineering News*, Vol. 61, No. 14.



FUSHUN COLLIERY: MACHINE SHOP, CHIEN-CHIN-CHAI

FAR EASTERN ENGINEERING, CONSTRUCTION, COMMERCIAL AND FINANCIAL NEWS

ELECTRIC RAILWAYS, LIGHT, POWER, TELEGRAPHS, TELEPHONES, AIRSHIPS, ETC.

AMERICAN-KOREAN ELECTRIC COMPANY.—It is reported that negotiations are under way for the sale of this company to Japanese capitalists.

WUHU ELECTRIC LIGHT PLANT.—The new plant recently installed at this place began operations on March 1st and has given very satisfactory service.

RAILWAY GAS PLANT.—The South Manchuria Railway will begin work on its gas plant at Dalny about the last of June. All the equipment has been ordered.

WIRELESS FOR HONGKONG.—The establishment of a wireless station is now being agitated at Hongkong in view of the importance of the port and its value to shipping.

JAPANESE ELECTRICAL INVENTIONS.—An encouragement fund has been started by the Electrical Association of Japan for rewarding successful inventors of electrical appliances.

CHINESE LONG DISTANCE TELEPHONES.—A German and an American company have each asked for a franchise from the Chinese Government to instal a system that would connect Peking, Hankow, Nanking and Canton.

DAIREN-CHEFOO CABLE.—The preliminary survey preparatory to the laying of the cable by the joint Japanese-Chinese company between these two points is now under way. The service is expected to be operating about November.

SHANGHAI WIRELESS.—The Chinese government has directed that no wireless stations be permitted installed by foreigners in the Settlements. The claim is that such installation affects the interests of the Chinese Telegraph Company.

ANTUNG ELECTRIC LIGHT AND MOTOR CO.—This company which has only been operating for the last three months under joint Chinese and Japanese management is meeting with success. There are over 1,500 lights being supplied at the present time.

TOKYO ELECTRIC LIGHT COMPANY.—This company is raising a loan for the purpose of constructing a power house on the lower course of the Katsuragawa below the site of the present plant. It is expected to complete this section of the extension work in four years.

ORIENTAL ELECTRICITY COMPANY.—This is the name adopted by the organization formed by the General Electric, the Shibaura Engine Works and the Tokyo Electric Company with a capital of yen 4,000,000 of which the American company takes 2,120,000 yen.

KEIHAN ELECTRIC RAILWAY.—The equipment of this railway that is to connect Kyoto with Osaka, double track, 30 miles in length, has been ordered from Messrs. Dick, Kerr & Co., Messrs. Williams and Robinson and Messrs. Babcock & Wilcox. These English firms will supply the electrical plant, the turbines, and the boilers respectively.

JAPANESE TELEPHONES.—The number of telephones installed in Tokyo and Osaka at the close of 1908 was 30,000; the number in Kyoto, Nagoya, Kobe and Yokohama, 12,000; and the number in other parts of the Empire 30,300, making a grand total of 72,300. It is proposed by the government to increase this total by 61,230 between the present year and 1912.

TOKYO ELEVATED.—The plan to construct an electric elevated in this city has been extended to include about 31 miles of track with a view to dividing the system into two main lines intersecting each other. One of these lines will connect Shinagawa and Sanja and the other Shunjiku and Honje. The application made by some Japanese capitalists is now being considered.

RAILWAYS AND RAILWAY SUPPLIES

YUNNAN RAILWAY.—The prospect for the completion of this line to Yunnan by the end of 1910 is more promising.

PEKING-HANKOW RAILWAY.—The net proceeds remitted for the quarter ended March 31st, 1909, amounted to Tls. 200,000.

MACAO-CANTON RAILWAY.—The prospect is brighter for the early construction of this line with joint Portuguese and Chinese capital.

DAIREN-SUCHCHIATUN DOUBLE TRACK.—The doubling of this track will be completed this fall and operations will begin by December.

MUKDEN'S NEW STATION.—The work on this new station being constructed by the South Manchuria Railway is being pushed with vigor.

RAILWAY SHADE TREES.—The South Manchuria Company has secured 60,000 shade trees from Japan for distribution among the different stations.

SHANGHAI-HANGCHOW-NINGPO RAILWAY.—The section between Sungking and Fongking was opened on April 14th and completed the Kiangsu section covering a distance of 112 Li.

SIAM NORTHERN RAILWAY.—The construction work on this line has been abandoned and will not be resumed for three or four years or until the line to Paknampo develops sufficient revenue to make it a paying quantity.

CANTON-KOWLOON.—At the laying of the foundation stone of the Canton Railway station, April 8th, by Sir Frederick Lugard, Mr. Grove, the Chief Engineer, stated that he anticipated a through service from Kowloon to Canton by July, 1911.

HONGKONG RAILWAY CONSTRUCTION ACCOUNT.—During the year 1908, $6,378,000 were expended for construction and charged out from the following receipts: Advances from Loan Fund (£330,000), $3,294,693.87; Crown Agents' advances, $1,437,092.62; Drafts on Crown Agents, $290,768.02; Reimbursement due to Public Works Extraordinary, $1,356,136.50.

SOUTH MANCHURIA RAILWAY TRAFFIC REPORT.—The gross tonnage of the freight transported by the South Manchurian Railway during the past six months from October last to March 21st of the present year was 1,542,507 and the total fare of transportation 7,052,765 yen. These figures show an increase of 581,731 tons in freight and 3,179,642 yen in fare, compared with those of the corresponding period of the preceding year.

TRANS-MONGOLIAN LINE.—The Minister of Posts and Telegraphs has made a proposal to construct the extension of the proposed Kalgan-Urga Railway to Maimaicheng and make connections with the Siberian Railway by way of Kiakhta. Russian capitalists are also interested in the construction of a line from Muisovaya a point on the Siberian Railway, to Kiakhta to connect with the proposed Trans-Mongolian line.

PUBLIC WORKS, DOCKS, WHARVES, ETC.

SUNGARI RIVER IMPROVEMENTS.—Dredging plants have been purchased at Tientsin and will begin operations at an early date.

LIAOYANG WATERWORKS.—The estimated outlay for this installation will not exceed yen 20,000 and the work started this month.

YOKOHAMA WATERWORKS.—The municipality is raising a loan of yen 7,000,000 to cover the expense of waterworks expansion.

HOIHOW HARBOR WORKS.—A survey of this harbor is being made with a view to deepening the channel to receive cargo boats freely.

THE CHINESE WATERWORKS COMPANY.—This company has issued a prospectus attracting attention to its flotation at a capital of Tls. 1,250,000.

FRENCH CONCESSION, SHANGHAI.—Provision is made by the budget for the expenditure of Tls. 159,300 for new roads during the fiscal year.

ARTESIAN WELL AT HANKOW.—A well with the capacity of 2,000 cubic meters an hour has been successfully operated by the French Syndicate.

YINKOU WATERWORKS.—The laying of the water mains in the principal street is almost completed and the service pipes are being installed as orders are registered.

DREDGER FOR KUANTAN.—The Federated Malay States dredger Kuantan is to be employed dredging the river at Kuantan where there is great exposure to shipping owing to the dangerous bar during stormy weather.

HAIHO CONSERVANCY FORESTRY DIVISION.—The planting of young trees in the old river bed with the purpose of lining the borders of waterway with trees as far as Tientsin is the latest enterprise of the board.

TAMSUI HARBOR WORKS.—The accumulation of silt in this harbor has become so serious a menace to steamers entering the port that several dredging plants will be engaged deepening the harbor during the fiscal year.

DAIREN ROAD BUILDING.—Out of an appropriation of yen 1,400,000 for the purpose of constructing streets and roads over yen 500,000 have been expended. The total amount named is to cover the work until the end of 1910.

SEKIANG RIVER CONSERVANCY.—The viceroys of Kwantung and Kwangse are preparing joint plans to dredge the Sekiang River and otherwise preserve the waterways from silting, thus preventing serious damage from floods.

LANCHOU-FU BRIDGE.—The construction of this important bridge over the Yellow River is almost complete. Its length is over 800 feet and two of the spans are 160 feet in length. It has a width of 40 feet for cart and passenger traffic.

HAWAIIAN DOCK REVISION.—The size of the large dock for the Naval Base at Pearl Harbor will be reduced from 1,195 to from 600 to 700 feet in view of the shortage of funds provided. The latter size will be big enough to accommodate a 30,000 ton battleship.

LIAO RIVER IMPROVEMENTS.—The improvements here will consist of the immediate building of a weir with lock at the opening and provision made by a diverting wall to prevent the channel suffering from the severe current. The river will also be deepened in several places.

QUARANTINE STATION AT PULAU JEREJAK.—The construction of this institution which will cost about $500,000 has commenced. An extensive sea-wall will be built and a reservoir is contemplated by the plans. The point selected for the site is directly opposite the town of Penang.

PORT OF MIIKE.—This port, which was recently opened by the Mitsui Bussan Kaisha, has a tidal basin newly constructed with an area of 160,000 square yards and a depth of 30 feet minimum. The quay wall is 1,380 feet in length and capable of accommodating steamers of 10,000 tons. The loading machines have a capacity of 5,000 tons of coal a day. The work was extended over a period of five years.

SHIPBUILDING, GENERAL MARINE AND FISHERIES

CHINA MERCHANTS S. N. CO.—The Grand Council proposes placing this company under the control of the Board of Posts and Communications.

PARACELS FISHING INDUSTRY.—The Viceroy of Canton proposes to encourage the industry on these islands and a surveying party is now making a reconnaissance.

SHIPYARD AT PETUNA.—The Governor of Heilungkiang has decided to establish a yard at this point for the purpose of constructing steamers and docking them as well as junks for the carrying of coal from the Kanho coal mine.

PORT ARTHUR HERRING FISHERIES.—Japanese and Chinese fishermen have established a village about five miles north-east of Port Arthur and are engaged in catching herring and bonito that abound there in large quantities.

CHINESE WHALING COMBINE.—A trust designed to control the whaling industry in Japan has been organized by the amalgamation of the four leading companies with a capital of yen 7,000,000. The combine will be known as the Meiji Suisan Kaisha.

KIANGNAN DOCK EXTENSION.—The Commissioners for Navy Reorganization of China's Navy have decided to extend the Kiangnan Dock at Shanghai as they are most conveniently located for the docking of vessels of the Pehyang and Nanyang squadron.

MOTOR LAUNCH BUILT AT SHANGHAI.—The motor vessel Asiatic, erected by the New Engineering and Shipbuilding Works at Shanghai, was launched last month. It was built for the Asiatic Petroleum Company for the Yangtsze service. It is 164 feet over all; breadth 25 feet; a loaded draught of 5 feet, 6 in., and a capacity of 340 tons dead weight. Her speed is 6.2 knots. She is equipped with three 40 h.p. petroleum motors.

MINES, MINERALS AND THE METAL TRADE

ONODA CEMENT FACTORY.—The factory of this company at Choushuitsu has begun operations.

KIRIN COAL MINE.—The discovery has been reported of a large seam or coal at Suifen Ting. The Mining Bureau is making an investigation.

FORMOSAN COAL PRODUCT.—The value of the coal product of Formosa reached approximately yen 500,000, almost doubling the output of the previous year.

AMBER QUARRY IN MANCHURIA.—The discovery of an amber deposit near Hsinmintun has been reported at Dalny, but this has not been officially confirmed.

YENTAI COAL MINES.—The work of installing equipment in these mines promises to be completed by the end of the year when a daily output of 300 tons may be expected.

POWLETT COAL FIELDS.—The discovery of coal in Victoria, Australia, has been investigated and it develops that the quantity available will exceed 20,000,000 tons.

RUSSIAN OIL IN MANCHURIA.—The imports amounted to over 340,000 cases during the year 1908. Russia's total trade in the Far East for the year amounted to approximately 1,000,000 cases.

PAULO LAUT COAL CO.—This company has now 32 Europeans employed with a force of 1,200 laborers. Coal is quoted 17s. Its value as a steam producer is about 80 per cent of that of Welsh coal.

CHINESE COAL FOR JAPAN.—The *P. & I. Times* announces that a shipment of 3,000 tons of coal was made to Japan by the Chinese Engineering and Mining Co. through their agents as a trial shipment.

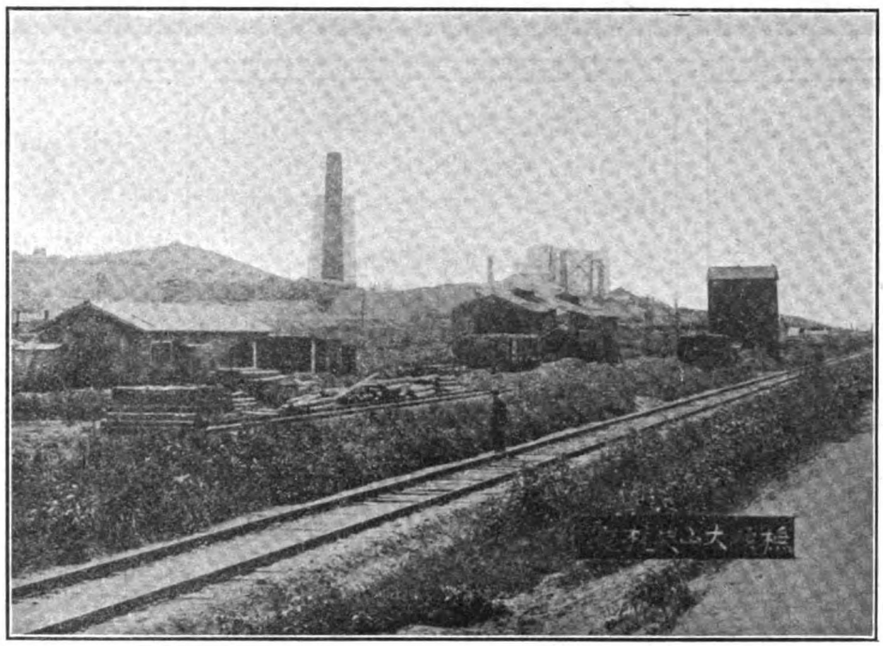
KYUSHU COLLIERY AND STEAMSHIP COMPANY.—According to the latest reports this company is now prepared to open up their coal fields in Hizen province where 5,000,000 tsuba in area is under their control.

PYENG YANG COAL MINES.—The output of the Government mines at this point is approximately 4,000 tons a month and it is its purpose to increase the output to 5,000 next year. The quality is said to be superior to Japanese coal and sells for yen 6.50 to $7.00 a ton.

YANGTSZE ENGINEERING WORKS INAUGURATED.—The ceremony of opening this new institution took place April 21st. It represents one of the most important engineering developments in Hankow for many years. The plant covers an area of 30 acres and includes equipment and machinery for the construction of steel bridges as a specialty. The motive power is electricity.

THE MURORAN STEEL WORKS.—Considerable progress has been made, in spite of a severe winter, with the Muroran Works of the Nihon Sei-ko-sho, or Japan Steel Works; the Company which has been formed by the two well-known English firms of Vickers Sons and Maxim, Ltd., and Sir W. G. Armstrong Whitworth & Co. in conjunction with the Hokkiado Coal Co. to manufacture war material in Japan according to the systems of the two English Companies. It is expected that work will be commenced in the gun machinery shops during the summer, but the steel melting and forging shops will take some time longer before they are ready to start work. In the meantime the Japanese Government have placed with the Armstrong and Vickers Companies the order for the material necessary for the two large battleships of the *Dreadnought* type, now being built in Japan.

○ FUSHUN COAL ○



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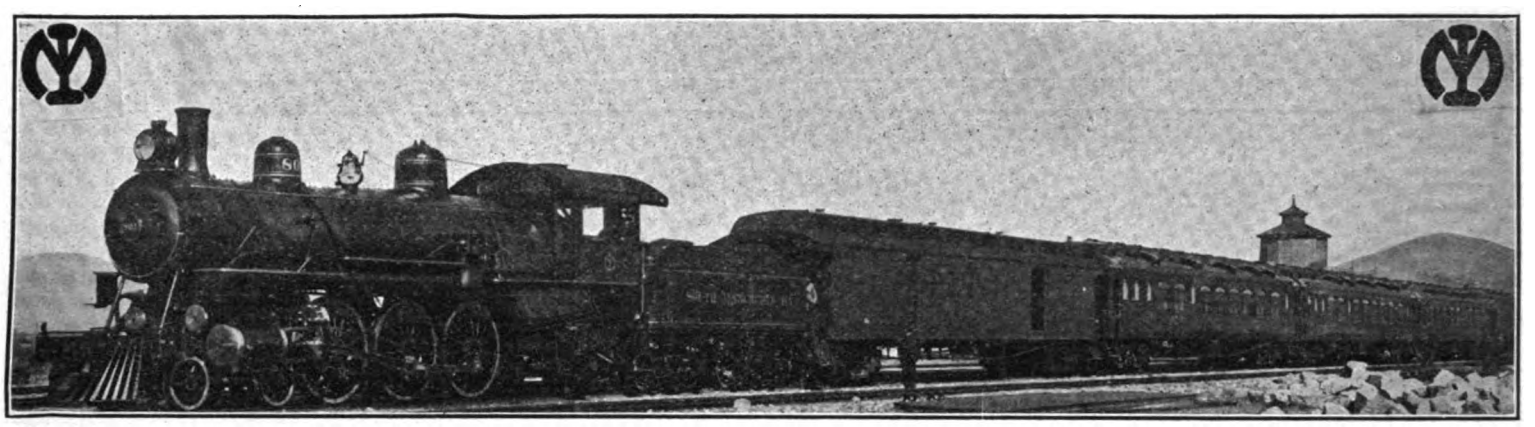
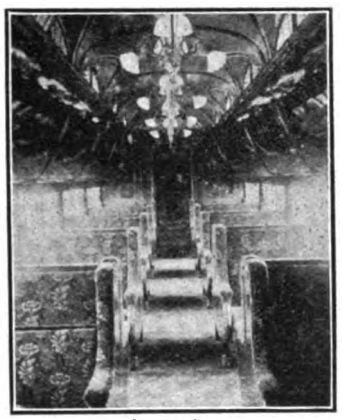


South Manchuria Railway Company



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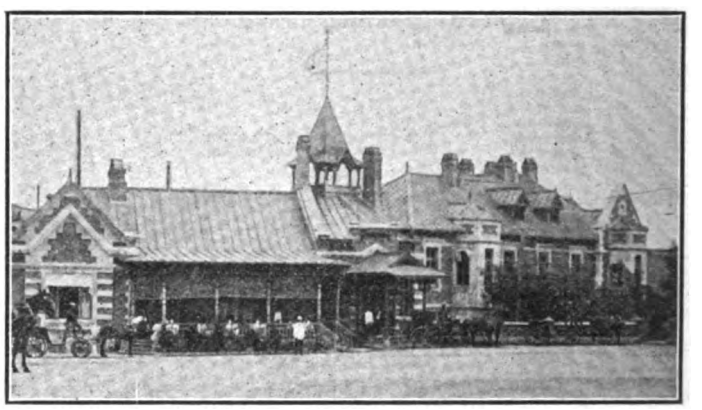
Leave —Shanghai (*Steamer*). ...		Thurs.	Sat. or Sun.	
Arrive—Dairen (,,)		Sat.	Mon. or Tues.	
Lv. — ,, ...	11 a.m.	Sun.	Tues.	Fri.
Ar. —Mukden.....	8 50 p.m.	,,	,,	,,
Lv. — ,, ...	9.15 p.m.	,,	,,	,,
Ar. —Changchun.....	5 a.m.	Mon.	Wed.	Sat.
Lv. — ,, (*Russian Train*)*...	6.55 a.m.	,,	,,	,,
Ar. —Harbin (,,) ...	8 p.m.	,,	,,	,,
Connecting at Harbin with		State Express for Moscow.	Wagon-Lits for Moscow.	State Express for St. Pet'g.

SOUTH-BOUND

Connecting at Harbin with		State Express from St. Pet'g	State Express from Moscow.	Wagon-Lits from Moscow.
Leave —Harbin (*Russian Train*)*	9 a.m.	Tues.	Thurs.	Sat.
Arrive—Changchun (,,)	6 00 p.m.	,,	,,	,,
Lv. — ,, ...	7 p.m.	,,	,,	,,
Ar. —Mukden.....	2.10 a.m.	Wed.	Fri.	Sun.
Lv. — ,, ...	2 30 a.m.	,,	,,	,,
Ar. —Dairen..	12.30 p.m	,,	,,	,,
Lv. — ,, (*Steamer*).....	afternoon	,,	Sunday	
Ar. —Shanghai (,)....		Fri.	Tuesday	

* Russian Train time is 23 minutes earlier than S. M. R. time.

SOUTH MANCHURIA RAILWAY, YAMATO HOTEL, PORT ARTHUR



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